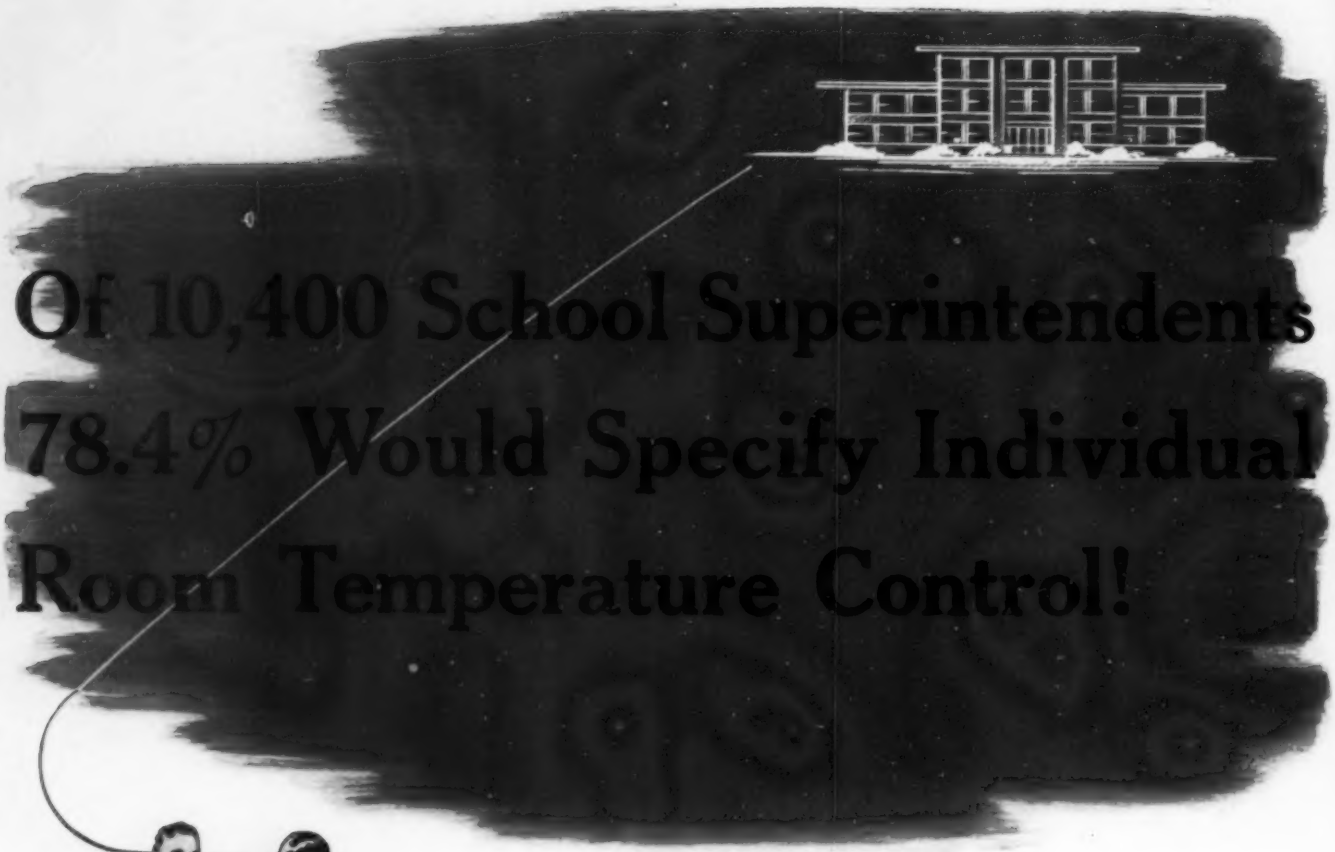
College and University Business

JANUARY 1950: Business Manager and Trustees * Dealing With the Press * If State Support Keeps Shrinking * Frozen Food Facts * Planning for Maintenance, Remodeling and New Construction



Of 10,400 School Superintendents 78.4% Would Specify Individual Room Temperature Control!

"THE Ideal School — How Would You Build It?" That's the question *School Management* Magazine asked more than 10,000 school superintendents across the nation. And more than three of every four responses specified individual room temperature control. When asked which features would be eliminated for reasons of economy, individual room temperature control was the last to be mentioned!

Yet these facts are not surprising, for educators have long taken the lead in molding the health habits of our country. Our school systems have contributed important new knowledge about the need for controlled atmosphere — healthful temperatures, correct humidity and adequate ventilation.

If you would like to see the complete *School Management* survey, Minneapolis-Honeywell, 60-year leader in automatic control, will arrange for the publisher to send you a copy. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

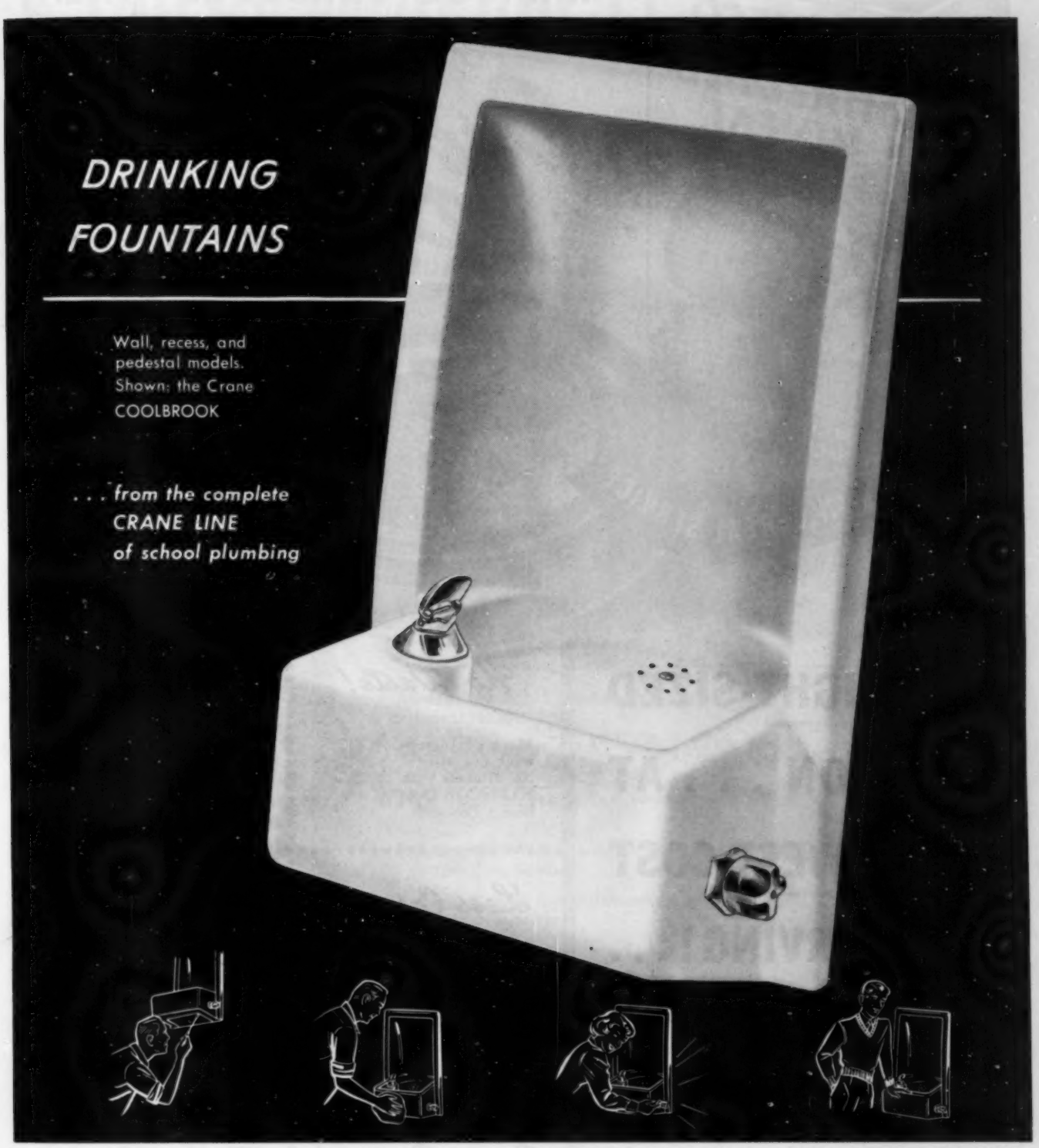
"Guarding America's Health with Controlled Atmosphere"

THE PREFERRED SCHOOL PLUMBING

DRINKING FOUNTAINS

Wall, recess, and pedestal models.
Shown: the Crane COOLBROOK

. . . from the complete CRANE LINE of school plumbing



EASY MAINTENANCE— removable cover plate.

QUICK CLEANING— bright vitreous china.

HIGHEST SANITATION— safeguards student health.

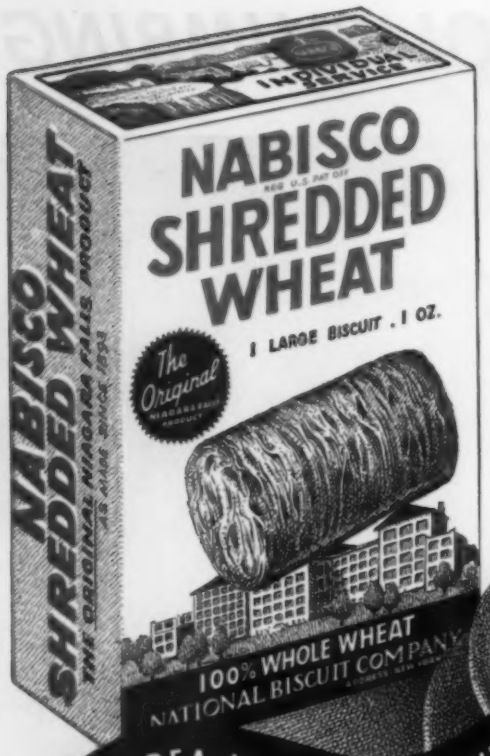
DURABILITY—for years of tough school usage.

For *anything* in school plumbing, see your Crane Branch, Crane Wholesaler, or Local Plumbing Contractor

CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5

PLUMBING AND HEATING • VALVES • FITTINGS • PIPE



NABISCO SHREDDED WHEAT

in the

One Biscuit Package

THE RIGHT-SIZED PORTION . . . AT THE LOWEST COST PER SERVING! . . .

A PRODUCT OF NABISCO *NATIONAL BISCUIT COMPANY*

No Waste!

Most customers want *one* biscuit. No leftovers with NABISCO'S One-Biscuit Package!

Less Cost!

Cut your food cost! Serve one large biscuit instead of two —at the *lowest cost per serving.*

Less Cream!

Two biscuits usually mean two servings of costly cream. Save cream with NABISCO!

Less Sugar!

Another important food cost that's cut when you serve only one biscuit of NABISCO Shredded Wheat!

Proper Portion!

Each serving weighs one ounce—the amount approved by the government for proper nutrition.

The Home Favorite!

This is the original Niagara Falls product—preferred by your customers in their own homes!

NATIONAL BISCUIT COMPANY, Niagara Falls, N. Y.
Send your salesman with prices and promotion ideas on the new One-Biscuit Package of NABISCO Shredded Wheat.

Name_____

Organization_____ Title_____

Address_____

City_____ State_____

®

College and University Business

EDITORIAL DIRECTOR
RAYMOND P. SLOAN

MANAGING EDITOR
HAROLD W. HERMAN

ASSISTANT EDITORS
MILDRED WHITCOMB
BEULAH H. TORSET

•

PUBLISHING DIRECTOR
J. W. CANNON Jr.

DIRECTOR MARKET RESEARCH
RUSSELL T. SANFORD

PRODUCTION MANAGER
LEO KEDROK

•

PUBLISHING AND EDITORIAL OFFICES
919 N. MICHIGAN AVE.
CHICAGO 11, ILL.
SU perior 7-6402

•

EASTERN OFFICE
101 PARK AVE.
NEW YORK 17, N.Y.
MU rray Hill 3-2445

•

PACIFIC COAST REPRESENTATIVES
ROY M. McDONALD & CO.
LOS ANGELES, SAN FRANCISCO
SEATTLE

Published monthly by The Nation's Schools Division, The Modern Hospital Publishing Co., Inc., 919 North Michigan, Chicago 11, Ill., U. S. A. Otho F. Ball, president; Raymond P. Sloan, vice president; Everett W. Jones, vice president; Stanley R. Clague, secretary; J. G. Jarrett, treasurer. Copyright 1950, by The Nation's Schools Division, The Modern Hospital Publishing Co., Inc. Accepted under the Act of June 5, 1934, at Chicago, Ill., authorized March 4, 1947. Published on the tenth of the month of the date of issue. Change of address should be sent thirty days in advance of publication date.

Vol. 8, No. 1, January 1950

January 1950

FEATURE ARTICLES

Common Goal for Faculty and Nonacademic Personnel 9
CHARLES C. CAVENY

Business Manager and the Trustees 11
CHARLES B. KETCHAM

Dealing With the Press 13
LESTER M. NICHOLS

Picture of the Nonacademic Employe 14
BARBARA BRATTIN

Taxation of Fellowships 17
T. E. BLACKWELL

How to Keep the Faculty Contented 18
ERNIE RAUM

If State Support Continues to Shrink 20
ROBERT L. WILLIAMS

Survey of Building Costs 21

Remodeling Job Increases Occupancy 22
HANNA GUNDERMAN

Union Building at Case 24
FRANK NOFFKE

Plant for Engineering Laboratories and Research 27
J. H. LAMPE

Planning for Maintenance in New Construction 32
NORMAN W. MARBLE

Service Center for Maintenance and Supply 33
ROBERT J. McCLOUD

Fresh Facts About Frozen Foods 34
PAUL P. LOGAN

Fire Extinguishers, Their Selection, Maintenance and Use 37
WILLIS G. LABES

QUESTIONS AND ANSWERS 6

LOOKING FORWARD 10

NEWS OF THE MONTH 40

DIRECTORY OF ASSOCIATIONS 48

NAMES IN THE NEWS 52

WANT ADVERTISEMENTS 70

WHAT'S NEW 76

EDITORIAL BOARD

GENERAL ADMINISTRATION

WILLIAM NORTON.....*University of California*
D. L. RHIND.....*M.I.T.*
HARRY L. WELLS.....*Northwestern University*

FINANCE AND ACCOUNTING

T. E. BLACKWELL.....*Washington University*
BOARDMAN BUMP.....*Mount Holyoke College*
CLARENCE SCHEPS.....*Tulane University*

PERSONNEL AND OFFICE MANAGEMENT

DONALD E. DICKASON.....*University of Illinois*
CHARLES W. HOFF.....*University of Omaha*
J. O. LINDSTROM.....*University of Oregon*

PURCHASING AND STORES

HENRY B. ABBETT.....*Purdue University*
GEORGE S. FRANK.....*Cornell University*
LESLIE F. ROBBINS.....*University of Colorado*

DESIGN AND CONSTRUCTION

HENRY KAMPHOEFNER.....*North Carolina State*
ERNEST L. STOUFFER.....*University of Illinois*
PHILIP E. KEENE..*State College of Washington*

PLANT OPERATION AND MAINTENANCE

A. F. GALLISTEL.....*University of Wisconsin*
STANLEY PATTERSON.....*S.M.U.*
FRED G. ROUNDS..*State College of Washington*

FEEDING AND HOUSING

MARY DEGARMO BRYAN..*Columbia University*
THEODORE W. MINAH.....*Duke University*
CHRISTINE RICKER.....*Stanford University*

AUXILIARY ENTERPRISES AND RELATED ACTIVITIES

F. L. JACKSON.....*Davidson College*
T. N. MCCLURE.....*Knox College*
R. B. STEWART.....*Purdue University*

STUDENT ENTERPRISES AND SERVICES

FRED AMBROSE.....*University of Iowa*
PORTER BUTTS.....*University of Wisconsin*
IRWIN K. FRENCH.....*Middlebury College*

EDITORIAL CONSULTANTS

JAMIE R. ANTHONY.....*Georgia Tech*
SAM BREWSTER.....*Alabama Polytechnic*
WILLARD J. BUNTAIN..*Northwestern University*
W. A. DAVENPORT.....*Brown University*
PAUL FRIEDRICH.....*Cranbrook Schools*
G. A. MILLS.....*Princeton University*
BRUCE POLLOCK.....*Carleton College*
REV. J. LEO SULLIVAN, S. J.....*Holy Cross*
DON WHEATON.....*Sweet Briar College*

Among the Authors

C. B. Ketcham

CHARLES B. KETCHAM, president of Mount Union College, Alliance, Ohio, was a World War I chaplain and later a Methodist minister in four communities in Ohio before accepting his present appointment in 1938. He has been active in church and educational affairs, is at present a member of the judicial council of the Methodist Church, and was formerly president of the Ohio College Association. Prominent in civic affairs as a Rotarian, he is also a Legionnaire and a 33d degree Mason, and during 1939-40 and 1945-46 he served as grand chaplain of the Grand Lodge of Ohio. Interested in matters of college administration, Dr. Ketcham states on pages 11 and 12 what he feels ought to be the administrative relationship between the college business manager and the board of trustees.

H. Gunderman

HANNA GUNDERMAN, bursar of Pennsylvania College for Women, tells on page 22 how an old mansion was effectively converted into an attractive residence hall for college students, demonstrating her ability to keep a close eye on student needs and institutional income. She was a faculty member at Thiel College and at her present institution before accepting the appointment she now holds. She has been a member of the executive committee of the Eastern Association of College and University Business Officers. For relaxation she prefers travel and has journeyed to Mexico, Alaska, Nova Scotia, and the Caribbean.

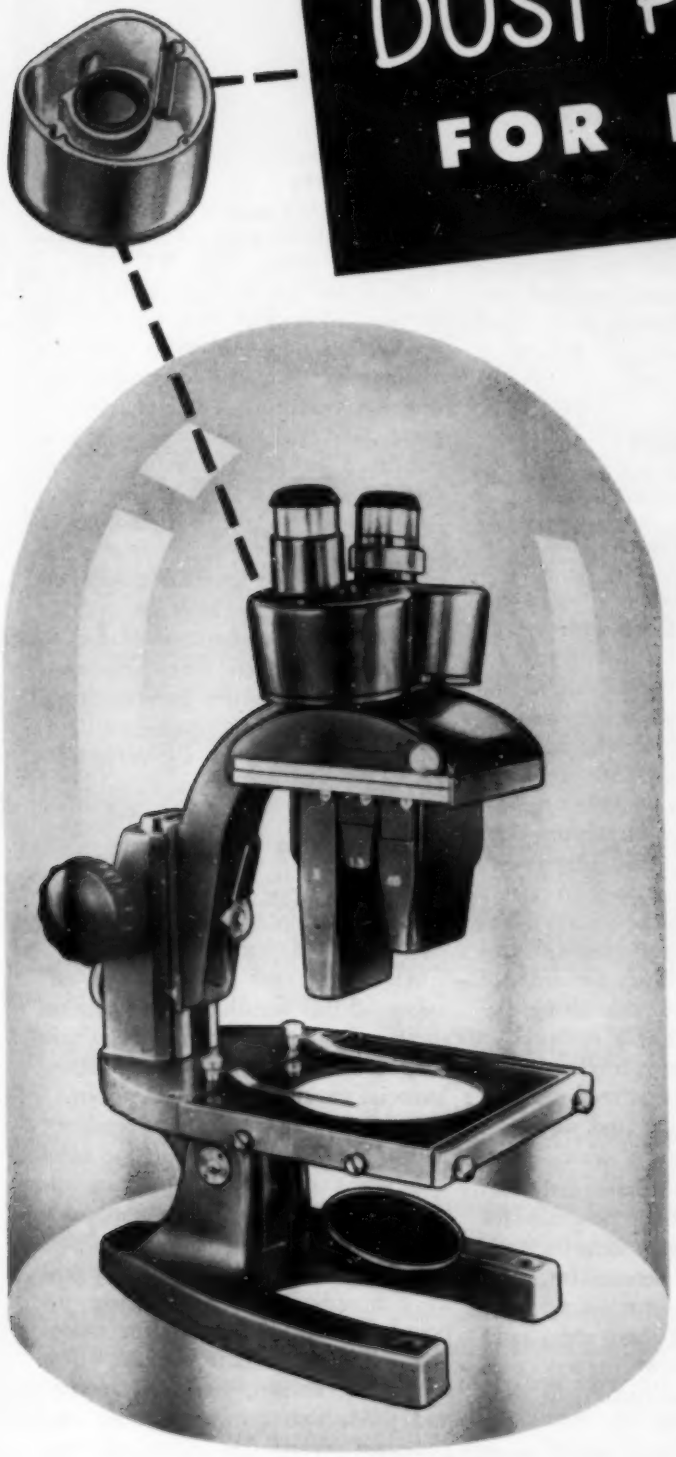
N. W. Marble

NORMAN W. MARBLE, director of physical plant at the University of Texas, Medical Branch, at Galveston, brings an architect's training to an analysis of maintenance problems. On page 32 he calls for careful preliminary planning in the design of a building so that any repairs that need to be made during the life of the building can be done with a minimum of expense. He was in private practice as an architect in Rhode Island from 1916 to 1931. Since 1931 he has been a physical plant administrator for various institutions. Before moving to Texas he was superintendent of buildings and grounds at Rhode Island State College and previous to that was chief of the division of public buildings for the state of Rhode Island.

W. G. Labes

WILLIS G. LABES, assistant professor of fire protection engineering at Illinois Institute of Technology, describes on pages 37-39 how to purchase fire extinguishers and the special uses and limitations of each type of extinguisher. During World War II Mr. Labes was active in the U.S. Navy fire fighters school and later served as fire marshal aboard the *U.S.S. Intrepid*. Prior to this wartime service, he had been fire protection engineer for the Factory Insurance Association in Chicago. For relaxation he tries his hand at woodworking, hunting, fishing, horseback riding, and photography. He seems to be a man of the soil in view of his interest in soil conservation and gardening.

DUST PROOF FOR LIFE!



Patented design *seals off* upper surface of each prism with Neoprene ring . . . Protects precision optics from dust and dirt . . . Assures maximum clarity and accuracy, *life-long* service.

WIDER FIELDS!

Critical focus on larger area than ever before . . Advanced design optical system insures *true stereopsis* . . . Finest optics ever produced for wide field work.

Plus

Higher eyepoint • Dustproof nosepiece Sturdier mechanical construction • and many other advantages you'll want.

Write today for complete information and demonstration. Bausch & Lomb Optical Company, 767-M St. Paul Street, Rochester 2, N. Y.

•

Bausch & Lomb *Stereoscopic* Wide Field Microscopes

Questions and Answers

Building Costs

Question: What is the present status of building costs? Are we likely to encounter wide fluctuations in costs in launching a construction program now?—F.S., Minn.

ANSWER: Construction costs in the institutional field have decreased by 15 to 20 per cent, according to surveys conducted recently in the area of hospital and school construction. Most of this decline in building costs has taken place in the last six months.

Reasons for the decline in costs can be attributed mainly to the availability of most construction materials, with only one or two exceptions. The cost of labor still constitutes a major cost of construction, but contractors are reporting that there is a marked increase in labor productivity. With that trend, the customer is at least getting a better return on the high rates he has to pay.

The decline in construction costs appears to be fairly general throughout the nation. It is not anticipated that costs will decline to any substantial extent in the near future, unless business conditions should become so unfavorable as to be of "depression" character.—H. W. HERMAN.

Campus Lawns

Question: How can campus lawns be brought back into good condition after a hot, dry summer?—V.R., Okla.

ANSWER: Campus lawns should be kept in a good state of fertility, then when a hot period comes along they are able to withstand this condition with a minimum of damage. The use of proper turf mixtures will result in lawns that will give a minimum of trouble. Kentucky bluegrass is a good early and late season grass but tends to become dormant and brown during the dry, hot part of the summer. Some Colonial or Astoria Bent in the turf mixture will tend to give a green lawn when the Kentucky bluegrass is dormant. The question is not what to do about the horse after it is stolen, but how we can lock the door to prevent the theft. Proper watering and fertilizing will help bring back a brown, burned out lawn but a good day-to-day maintenance program that will prevent this situation is much more practical.—G. WILLIAM LONGENECKER, *professor of horticulture, University of Wisconsin.*

Service Contracts

Question: What are the advantages or disadvantages of maintaining a service contract with the supplier for maintenance of office equipment purchased by a college?—M.D., N.M.

ANSWER: The problem that a college administrator faces with service contracts of any kind is to pay for the service that is actually needed and not pay a great deal for service that may never be required. On machines that are used heavily and that are complicated, such as bookkeeping machines and automatic calculators, service contracts are a good investment, even though the cost now is rather high. Service contracts are advisable, also, with dictating machines. On such items as adding machines that are used but little, and possibly calculating machines that are used only occasionally by a faculty member, it might be well to pay for the service as required with an occasional cleaning and oiling to be billed as the work is done.

I have heard of no particularly successful service contract program for typewriters, although some schools maintain their own service for typewriters and adding machines. This system works well if there are a sufficient number of them in service to pay the cost of maintaining a shop and a good mechanic.

Service contracts are probably more advisable for schools that are relatively isolated from quick service because of the fact that breakdowns less likely would occur if the machines were checked periodically and would result in more inconvenience if it were difficult to get quick service.—CHARLES W. HAYES, *director of purchases, Emory University.*

Unit Costs

Question: Is it possible to determine accurately what unit costs are in an average liberal arts college?—C.G., N.Y.

ANSWER: Yes, it is possible to determine accurately the unit costs in any college or university that has maintained adequate accounting records. Appendix A of *Financial Reports for Colleges and Universities* published by the University of Chicago Press gives complete information relative to the computation of unit costs. I quote the second sentence of Appendix A, "In many cases, unit cost investigations have proved of value in the administration of the institutions in which they were conducted. In other cases, however, their practical value has been small."—G. A. MILLS, *controller, Princeton University.*

Contracting for Board

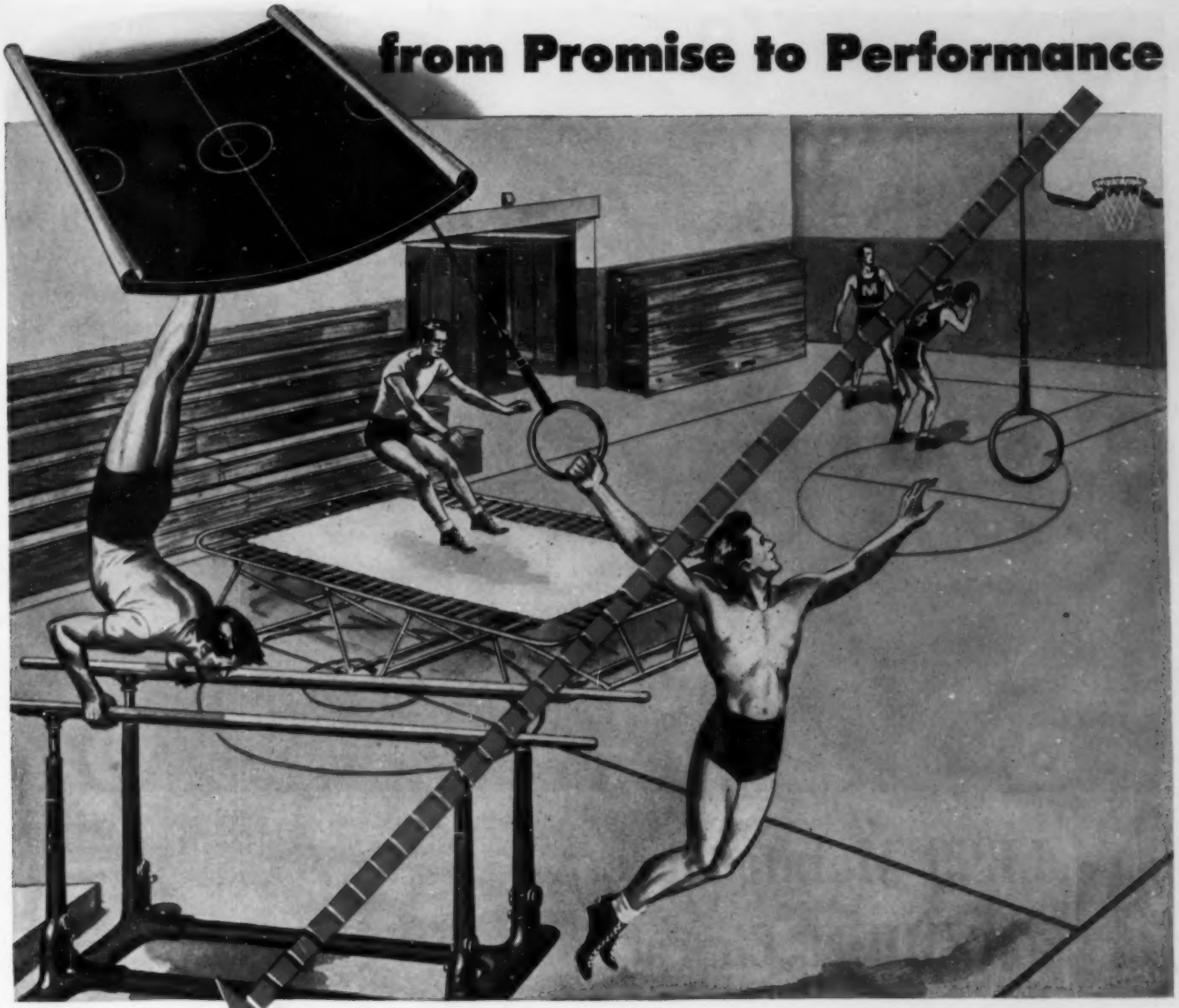
Question: If students are housed in a college residence hall, should it be mandatory that they eat in college operated dining halls?—M.J., Wis.

ANSWER: There is no "yes" or "no" answer to this question. Consideration must be given to each campus situation, traditions, building arrangements, financial structure, and expectations.

I do feel that within a residence hall, if the dining hall is in the same building it should be either an all-boarding unit or strictly a nonboarding unit. Generally speaking, a student can get better food at less cost in a boarding dormitory where his board is contracted for by the school year. This is possible because where income is known, overhead, menus and production can be planned and governed accordingly. The privilege of buying or not buying a particular meal and making a selection of food adds to the cost.

Many schools feel that it is difficult to amortize a residence hall without the income from a boarding unit. —T. M. REHDER, *director of dormitories and dining services, State University of Iowa.*

from Promise to Performance



rely on Medart... for complete planning service

WHETHER you're planning to install new Gymnasium Apparatus ...Steel Lockers...Gym Seats, or all three, you'll want the advantages of Medart consultation and planning *first.* Because it's that first step... relating plans to needs, based on budget limitations, that prepares the way for proper installation...with none of the headaches of changed plans due to unforseen problems...of unreckoned expenses that necessitate disheartening concessions from original plans. It may often mean the difference between a complete program and a compromise, partial one! It costs no more and results are sure ...if you let Medart *put it on paper first!*

MEDART MAKES

- Gymnasium Apparatus
- Basketball Backstops
- Telescopic Gym Seats
- Basketball Scoreboards
- Acromat-Trampolin
- Steel Lockers
- Steel Lockerobes

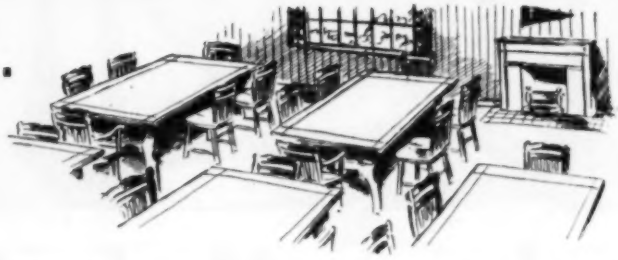
fm

FRED MEDART PRODUCTS, INC.

3535 DE KALB ST. ST. LOUIS 18, MO.

LEADERS FOR OVER 75 YEARS IN THE MANUFACTURE OF SCHOOL EQUIPMENT

LESS Maintenance... and MORE Charm!



"Colonist Craft" Early American furniture gives *maximum* service with a *minimum* of maintenance expense. This is due in large part to its rugged solid construction of selected Northern hardwoods and to the hardy Butterscotch Maple finish that withstands years of constant use and cleaning.

The rounded corners and edges . . . sturdy drawer pulls . . . reenforced hand-pegged joinery and useful, serviceable proportions all contribute to long life with minimum upkeep. You will be agreeably surprised at the modest first-cost, too.

Let us know the specific uses for which furniture is desired—we will be glad to send photographs and detailed specifications.

SIKES furniture

FOR DORMITORIES, DINING ROOMS, LIBRARIES, CLASSROOMS, OFFICES, RECEPTION ROOMS, CLUBS

SIKES

THE SIKES COMPANY, INC. • 32 CHURCHILL STREET • BUFFALO 7, N. Y.

GUEST EDITORIAL

COMMON GOAL FOR FACULTY AND NONACADEMIC PERSONNEL

CHARLES C. CAVENY
Dean, Chicago Undergraduate Division
University of Illinois

WE LOOK BACK NOW AND CHUCKLE ABOUT THOSE first hectic months in 1946 when we were converting the mile-long Navy Pier into a college campus for 4000 University of Illinois students. At first, our problems seemed insurmountable. Our "campus" was built originally as a shipping and storage pier. It has had a colorful history as an amusement center, convention hall, and as a navy training base during the last war. Our task was to turn it into classrooms, laboratories, office space, cafeteria facilities, library, study areas, and lounges in less than three months' time. The task was accomplished within the time limit, and classes started on Oct. 21, 1946, for 3846 students.

In retrospect, I believe that there are many advantages to "building a university from scratch." Foremost, we have found that something of the pioneering spirit captured in those first difficult months has carried over today. Our staff now numbers nearly 600 persons, including 300 members of the nonteaching staff. We believe that our school is establishing a sound academic reputation and that this accomplishment is largely due to the fine spirit of cooperation that has continued to be so much in evidence. A major objective of any college or university personnel officer should be to promote just such a spirit of cooperation. This involves bringing the teaching and nonteaching staffs closer together.

I wonder if the members of the nonteaching staff are convinced that their goal and the goal of the teachers and administrators are one and the same. Do we emphasize the fact that the English instructor's job of good teaching can be negated by the secretary in the college office? Do we "sell" the nonacademic staff on its rôle in building a better university? Are the interests in common stressed, rather than the differences between the academic on the one hand and the nonacademic on the other?

We should consider whether or not we are helping to strengthen the university "family" when we emphasize one set of regulations for the academic and another for the nonacademic; when we foster separate social events for the two; when we publish special bulletins for each. Are we endeavoring to increase the understanding of the respective rôles of the two groups or to widen the gap?

Many colleges and universities are moving in the direction of minimizing the differences between the two groups. One large midwestern university has adopted the term "staff" to refer to both the teaching and nonteaching personnel. In addition, its official university publication is written for and circulated to both groups.

The fact that people want not only to be treated fairly but to be treated alike is indeed true. How many secretaries envy the English teacher who is on the campus only three to four hours a day while they are confined to a desk from 8 to 5? Do your secretaries know the demands on the English teacher's time —the conferences with students, the grading work, scholarly research, and assistance to students in extracurricular activities? What is your answer when the Ph.D. in your mathematics department learns that the head electrician and other employes with much less than eight years of college draw larger pay checks?

College administrators are becoming increasingly aware of the need for informing their department heads, their teaching staff, and their research men of the future plans of their school. Administrators are making an effort to give their academic staff the "inside information" on top-level administrative plans and policies. The same effort needs to be expended toward informing the nonteaching staff of those goals.

Personnel work on our college campuses has made great advances in the last 10 years. Much has been accomplished in establishing uniform working practices, salaries and wages, and employe benefits. The job that remains to be done is less tangible, but it is just as important. It involves "selling" the entire staff on the importance of its rôle in building a better school and in providing a better education for the youth of our nation.

Looking Forward

An Encouraging Trend

THE RECENTLY SUCCESSFUL INSTITUTE OF THE Southern Association of College and University Business Officers at Atlanta is indicative of a trend in the professional training of college business officers that merits serious study.

Too often, meetings of college administrators have lacked a program with any consideration of problems which need to be studied from a professional point of view and the solution of which will contribute to the professional growth of the participant. The programs seem to lack integration and coordination, and are strung along in casual manner like beads on a string. The delegate attends the meetings, receives a heterogeneous batch of information and inspiration, and has a fine time "with old friends." But he hasn't grown much professionally.

In the institute technic, opportunity is provided for an intensive instructional approach that approximates in part the classroom technic. If the institute is conducted properly, the participant has a feeling of having "gone back to school" to learn new facts and to review old situations. His competence as an administrator should improve as a result of this exposure.

The thing to be feared is that the institute may become merely another gadget in the group meeting field —and degenerate into a typical convention. The institute idea is not the final answer in developing a training program for college administrators. It is merely a modest beginning in the right direction. This observation is true, whether it's an institute for business officers, purchasing agents, or food service directors.

To those outside the field of higher education, it has been a source of constant amazement that there is not even the semblance of a curriculum at any college or university for the training of college business administrators. Yet, several colleges have academic programs for the purpose of preparing trained hospital administrators and hotel administrators, and there are many institutions turning out public school administrators. Where does one learn to become a college administrator? Where can a person learn how to prepare budgets, to analyze investments, to finance new construction, to supervise personnel, to purchase properly, to operate a food service facility, to learn plant maintenance?

If college administrators wish to consider themselves as members of a profession, they ought to make noises like one. One of the primary requirements is the establishment of a course of study of professional stature; coupled with this is the requirement of a certain standard of performance to be maintained by those practicing in the field. Such curriculum and standards do not exist.

The Southern Association of College and University Business Officers and the National Association of Educational Buyers have moved in the right direction with the inauguration of institutes—but for practitioners in the field there is a long way yet to go to reach professional stature in curriculum and minimum standards of performance.

Watch Out!

CONGRESS IS IN SESSION AND WILL SOON BE EAGERLY searching for new sources of tax income. Indications are apparent that tax exempt corporations, foundations and nonprofit institutions of all types will be under searching observation. Senator George of Georgia, chairman of the Senate finance committee, has been quoted to the effect that "undoubtedly the next tax bill must deal with tax exempt corporations, including cooperatives."

Representative Mason of Illinois, a member of the House ways and means committee, has stated that colleges, foundations and other eleemosynary institutions now operate businesses through their investment holdings that amount to a net income of $520,000,000, on which there normally would be a tax revenue of approximately $14,000,000. Congress seems to be unhappy about losing all that tax income, particularly when facing a deficit on the current budget of more than $6,000,000,000 as the result of prodigal spending.

College investment policies are slated for a thorough "going over" by Congressional committees. The C. F. Mueller Company, spaghetti and noodle manufacturer, owned by New York University, has been reported to have had a test suit for taxes brought against it by the Treasury Department, on the grounds that noodle making does not qualify it for tax exemption as either "charitable, scientific, literary or educational."

Ten months ago in these columns, college administrators were warned regarding Congressional interest in the tax exempt status of colleges. Has the warning been heeded?

BUSINESS MANAGER AND THE TRUSTEES

CHARLES B. KETCHAM
President, Mount Union College
Alliance, Ohio

GOOD ADMINISTRATION IN ANY FIELD demands unity of command and responsibility. Where this principle of organization is followed in college and university business, the chief business officer will be directly responsible to the president of the institution and will be related to the board of trustees through him.

In such circumstances there is a definite responsibility resting upon the president, however, to make conference and cooperation between the business office and the trustees both possible and easy. A modern college is truly a cooperative enterprise. No one man is able to direct unaided all phases of both the academic and the business interests of the school, and do it wisely.

The trustees have both a legal and a moral responsibility for the financial safety and the economic soundness of the institution. The business manager's ability to implement intelligently the policies of the trustees, as directed by the president, will depend in some measure on his familiarity with those policies. He needs to know the mood of the trustees and their spirit as well as the letter of their action in setting up the program he is attempting to carry out.

On the other hand, to act wisely, the trustees will need the detailed information that only the business manager will be able to furnish quickly and accurately. They will also need his advice in setting up programs and policies for future action, if he is a good business manager.

This will be true even if the president is an executive trained in financial matters and chosen for his ability to handle satisfactorily a complex and diversified financial program. It will be a *must* if the president has not been so trained but has been selected for his background of academic understanding or his religious leadership or his skill in public relations. In such situations he, as well as the trustees, will need the advice of the business manager and his interpretation of the mood and the actions of the trustees with respect to the business affairs of the college.

At Mount Union we acquire the necessary counsel and cooperation under unified control by making the business manager the secretary of the board of trustees and ex officio a member of all the committees of the board. In this way the business manager is present with the president when policies are adopted by the board of trustees and when all phases of the work of the board are discussed in committee. His advice and information are available when they are needed, and his understanding of board policies makes him an intelligent and sympathetic ally of the president in the implementing of those policies. When decisions with respect to the application of policy are necessary or when unexpected problems require emergency action, the president makes the decision and assumes responsibility for it.

The trustees like such an arrangement because it gives them access to the information they desire and direct contact with the official who is in charge of all the financial operations without altering the lines of authority needed for wise administration and operation. An atmosphere of friendly cooperation is fostered inside the pattern of unified control.

Sometimes college administrators complain that they do not receive from the board of trustees of their institutions the support and the encouragement they should have. In most cases this lack of interest on the part of trustees stems from lack of information. They are so far removed from the day-to-day operation of the college and from an intimate knowledge of its problems that they have no sense of sharing in the life of the college or of being necessary to its well-being and success.

Under such circumstances the trustees have a tendency to accept without question the recommendations of the president. When they do exercise independent judgment, their judgment often is based on political considerations or on the usages and standards of the business world rather than on the basis of sound educational procedure.

UNIFIED CONTROL NECESSARY

When trustees have an intimate knowledge of the institution they serve and participate actively in its development and support, this will not be the case. In their minds problems will not fall into generalized categories or become stereotypes. Because they know what the issues are, they will be interested and have a sense of responsibility. They will assume gladly their share of the responsibility for such a cooperative enterprise.

To achieve these ends, it is not necessary that the business manager act as secretary of the board of trustees, as he does at Mount Union. Several other arrangements would serve as well if by them a way were provided for easy and natural interchange of information and opinion between the business office and the trustees without interfering with unified control and the over-all responsibility of the president.

Most institutions follow this pattern of unified control. In some schools, however, a direct relationship has been set up between the business manager and the board of trustees in certain areas of responsibility. The object of this arrangement is to give the trustees a more direct control over the financial policies and the budget of the school.

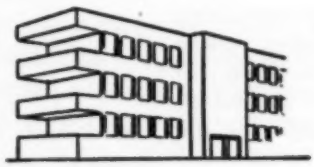
In many cases this plan has been instituted in a time of financial crisis for the institutions when the future of the school has depended upon strict financial control and a balanced budget. The trustees, conscious of their responsibility and determined to take effective means to remedy the situation, seek in college financial affairs the same direct and absolute control they exercise in their own business dealings at such a time. They make certain that the policies they adopt will be loyally and unhesitatingly administered by making the chief business officer directly responsible to the board.

If any considerable number of the trustees have lost confidence in the leadership of the president, such an arrangement promises both financial control and safety. A weak executive who is unable to command the complete loyalty of his staff, or to discipline it properly, will not be a good leader for a school in a period of financial peril. Even a good administrator, who is greatly beloved by the whole college community, may be inadequate at such a time if by training and experience he is not equipped for the financial reorganization that is necessary. In either case, direct action through the business manager presents to the trustees a quicker, easier and more direct way out of the difficulty than finding a new president and acquainting him with all the intricacies of a confused and menacing situation.

Tempting as this solution of the problem is, there are serious objections to using it. In the first place, however it begins, it usually ends by subordinating the president to the business manager so that the business manager becomes in practice the chief executive of the school. In few, if any, cases where this arrangement is set up, is it intended to make the business manager entirely independent of the president's office. That is the final result, however, in most cases.

Almost every decision that is made on a college campus touches the budget at some point. No decision made outside the business office, therefore, can be final until the autocrat of the budget has spoken. Thus, the president, himself, becomes subject to the policies and decisions of the business office instead of directing them. This, in effect, makes the business manager the top executive of the institution.

In the eyes of the faculty, the student body, the alumni, and the public, the president is the chief executive of the school. If his authority in financial matters is denied or undermined, he will not be able to maintain his authority in other fields. Under such circumstances, chaos is likely to result. Even though the business manager becomes the court of last resort in all matters relating to the budget, his authority in other fields will not be recognized by the college community or the public. By most people, the authority he does exercise will be resented.



Consequently, the administration that should be a coordinated whole will be controlled neither by the president nor by the business manager but will be divided among the deans and the department heads. Such situations usually become intolerable in a short period of time.

Colleges exist for one primary purpose—the education of the young people who attend them. No school can long remain effective or preserve a wholesome and stimulating atmosphere unless all the decisions that are made from day to day are made on a sound educational basis. The academic interests of the school must be paramount.

Finances, of course, cannot be completely disregarded, but they must be viewed from the perspective of a sound educational policy. Unless the business manager has a rich academic background and an unusual appreciation of the social values that are at stake in many of the decisions that must be made in the running of a school, the qualitative character of the institution and of its social life will suffer when authority with respect to budgetary matters is divorced from authority with respect to other aspects of life on the college campus.

Business managers who have been trained in the financial world where the balance sheet is the court of final appeal frequently are lacking in sympathy for the faculty and the students. Practically all faculty members are specialists. They are authorities in their fields. They are proud and sensitive and sometimes narrow in their interests. Hence, they are critical and hard to satisfy. But they are the core of the educational process. The definition of a college education as Mark Hopkins on one end of a log and a student on the other is still a valid description.

A college quickly loses its meaning and betrays its function when its teaching is not kept vital. An unsympathetic attitude toward the faculty may so hurt the spirit of the teaching force that the main purpose of the school is unfulfilled.

GETTING STUDENT COOPERATION

Students, too, present many difficult problems. They are full of confidence, often visionary, and frequently impulsive and unstable. They are not always discriminating in their appraisal of comparative values. If they believe they are being given proper consideration and being treated as adults, they can be happy with little and will cooperate with an enthusiasm that will make impossible things seem easy. If, however, they think they are being shoved around and are not receiving consideration as factors in a cooperative enterprise, they can make an institution more of a madhouse than a school.

There is sound reason behind the historic practice of keeping school administration in the hands of those who put social and academic interests first. Both the purpose of the college and the efficiency of its operation demand this. Also, there is no satisfactory substitute for unified control.

Write for Volume Index

If you bind your volumes of College and University Business you will want the index to Volume 7, covering issues from July through December 1949. You may obtain your free copy by writing to College and University Business, 919 North Michigan Avenue, Chicago 11, Illinois.

DEALING WITH THE PRESS

when the good name of the college is at stake

LESTER M. NICHOLS
Assistant to the President for Public Relations
City College of New York

ALMOST ALL COLLEGES AND UNIVERsities are occasionally faced with occurrences that are shadowed by a cloud of possible unfavorable publicity. The student strike at the City College of New York offers a classical and extreme example of this type of situation. As a result, it may be looked upon as a clinical case history of how careful planning and prompt action can help keep to a minimum distortions, half-truths and vital omissions of fact in the press, thus protecting the reputation of an institution.

Because the public relations lessons to be drawn from this case are clear-cut, it is hoped that they will serve as a guide to the actions of other college public relations officers who may be faced with future situations that carry the threat of unpleasant or unfavorable publicity.

REVIEW OF CASE

From the public relations point of view, the actual issues at stake in the City College strike are irrelevant. A brief review of the facts will serve to sketch in the background:

On Monday, April 11, the City College student council asked the student body whether it was in favor of boycotting college classes as a means of forcing an "outside" investigation of two faculty members who had been accused of racial and religious bias. A majority of students voted in favor of such a strike.

The college administration, on the other hand, asserted that inasmuch as the two persons involved had already been investigated and cleared by faculty investigating committees, no further action was called for. It was on this note that 65 per cent of the student body decided to stay out of classes the following Monday morning and set up picket lines on the campus.

It was at once apparent that the demonstration would result in the formation of unfavorable public opinion toward the college's students, faculty and alumni. And it was equally clear that no amount of public good will, however soundly developed in the past, could *entirely* prevent such a reaction. Therefore, the first move was to call an office conference and formulate a clear-cut public relations policy.

After a lengthy meeting, a comprehensive plan of action was drawn up. The major objective was two-fold: (1) to make available to the press the official and accurate point of view of the college administration on all phases of the strike; (2) to work closely with members of the press in an effort to minimize distortion as to the real nature of the strike—distortions that would inaccurately tend to characterize the student body as radical or riotous.

To this end, each member of the public relations department was assigned responsibility for specific areas. One assistant was detailed to handle representatives of the newspapers; a second was assigned to work with representatives from magazines; a third was given the task of maintaining liaison with radio broadcasters and researchers. It was agreed that assignments would be flexible, the better to deal with emergencies requiring the attention of several members of the staff.

The public relations office was organized into a press room to accommodate the 75 newspaper, magazine and radio men who converged on the college. Pains were taken to attend to their comforts and needs. Sandwiches and coffee were served daily. At least one member of the department was on hand throughout the night in the event of emergencies.

Throughout the eight days of the strike, the reporters were kept constantly apprised of latest developments. Daily press conferences were held during which authoritative figures on attendance and statements, by both administration members and leaders of the student faction, were released. Long standing and carefully nurtured friendships between the public relations staff and newsmen aided in the efficient functioning of the system.

In general, the reporters were as fair and objective as reasonably could be expected. There was little of the wildcat reporting that ordinarily comes out of situations of this type where information is not channeled and distributed through one central agency. At the same time, the public relations department held to a hard-and-fast policy of not suppressing or distorting information, no matter how unfavorable.

Statements clearly defining the opinion and position of the administration were made available to the entire press. The result: no newspaper stated that the strike was Communist dominated; and, while some papers on the hectic first day of the demonstration attempted to insinuate as much, later editions dispelled the erroneous earlier impressions.

BROADCAST NEWS

In a more positive move, the public relations department communicated with several top-notch radio broadcasters and requested them to report on the affair. These men gave a sober and restrained version of the strike and, in effect, lifted much of the stigma created by the earliest newspaper stories of a five-minute scuffle between excited police and students that took place on the first morning of the strike.

A basic assumption on the part of the public relations department was that one of its prime functions was to guard the reputation of the striking students. Both students and administration recognized that in order to protect the prestige of the institution it was necessary to keep noncollege left-wing groups from invading the campus and making political capital of the situation. Consequently, the staff also took upon itself the task of counseling student strike leaders when such advice was requested. That the strike leaders were successful in warding off these attempts was pointed out by metropolitan newspapers, the national wire services, and radio broadcasters.

In one instance, an ill-fated attempt at "infiltration" was made when an uninvited leader of a left-wing labor

union entered the public relations office and attempted to read a statement offering his group's unsolicited support to the striking students. The spokesman was discredited immediately. Student strike leaders were invited to the press room where they emphatically disavowed the radical leader and repudiated any and all Communist support.

Press treatment of the explosive and delicate issues of the strike was, with rare exception, remarkably temperate and sane. There must be a sharp distinction noted between some of the screaming headlines (unavoidable under the circumstances) that *were* printed and the completely distorted smear stories that *might have* appeared.

On the credit side of the ledger, too, was the fact that the college had built up during the last three years an effective public relations "cushion" of community respect through its cultural activities and programs of community service. As a direct result of the general public's carefully promoted awareness of the college's good works, citizens of New York City were less susceptible to the relatively few innuendos and distortions to which they were exposed.

In the last analysis, while it is undeniable that a certain amount of damage to the institution's prestige was done by the student strike—damage that will take time and effort to expunge entirely—members of the City College administration and student body have not lost sight of the fact that the irreparable damage that might have been actually was not done.

PICTURE OF THE NONACADEMIC EMPLOYE

PAY...HOURS...VACATION...SICK LEAVE...INSURANCE

BARBARA BRATTIN
Principal Personnel Technician
University of California

WHAT ARE THE ADVANTAGES OF working in a nonteaching capacity for one of the institutions of higher learning in this country? What pay rates apply? Are there any differences to be found by geographic location? By size of institution?

In an effort to find the answers to these and other questions, a questionnaire was distributed under the sponsorship of the College and University Personnel Association to 102 colleges and universities throughout the country in the spring of 1949.

The questionnaire and a comprehensive tabulation and analysis of replies were prepared by Richard Dingle, a graduate student in political science at the University of California. Mr. Dingle worked under the guidance of Boynton S. Kaiser, personnel association vice president in charge of research. Copies of the complete report entitled "Employe Personnel Practices in Colleges and Universities" are available at $2 a copy from Ruth Harris, secretary-treasurer, College and University Personnel Association, University of Illinois, Urbana.

42 INSTITUTIONS REPLY

Replies to the questionnaire (which with its 187 questions and 13 pages would have been enough to discourage an ordinary group of recipients) were received from 42 institutions, in which student enrollments vary from fewer than 1000 to more than 40,000, and in which the nonacademic employe population varies from 1000 to more than 15,000. The reporting agencies, ranging geographically from Massachusetts to Washington and from Florida to California, provide a broad sampling properly representative of this country's schools of higher education.

The yearly budget for personnel administration in these institutions extends from a low of $2400 to a high of $113,309, and the personnel office staff from one part-time employe to 28 full-time employes. Several of the smaller institutions indicated that personnel administration is not a major activity in their programs but is combined with other functions and performed only by part-time personnel, whereas, in some of the larger institutions, personnel administration is an integral part of the university management picture.

The great variation in personnel programs as to number and variety of functions, number of employes covered, and number of persons on the personnel office staff tends to make the results of a questionnaire of this kind somewhat misleading. It is, of course, statistically inaccurate to talk in terms of "the average" practice when dealing with a sampling of this size characterized by severe extremes. The following paragraphs, on the benefits and employment conditions that a "typical" American university employe might expect to find on the job, have, therefore, been written in a spirit of caution, with full knowledge that we may be charged with leaping from unwarranted assumptions to foregone conclusions. The description actually reflects a conglomerate of prevalent practices as reported by the 42 institutions responding to the questionnaire.

BENEFITS AND CONDITIONS

The "typical employe," William Smith, an accountant at "X" University, reports for work at 8 a.m., has one hour for lunch, and leaves at 5 p.m., during which work day he may twice take a rest period or "coffee time" of 15 minutes. His five-day, 40 hour week does not require work on Saturday. For occasional authorized overtime of one hour or more he receives no extra pay but may take compensatory time off at a later date and may add such time off to his accumulated vacation allowance if he wishes to do so.

After completion of a six months' probationary period, Mr. Smith receives a vacation allowance of 15 days a year, which is not cumulative and

SUMMARY OF WAGE AND SALARY RATES BEING PAID IN 42 COLLEGES AND UNIVERSITIES*

CLERICAL AND PROFESSIONAL PERSONNEL

	No. Reporting	Mean	Median	Min.	Max.	Inter-Quartile Range
Clerk (lowest level)						
Minimum rates	34	$128	$124	$ 80	$173	$108-150
Maximum rates	30	163	165	100	228	144-180
Clerk (second level)						
Minimum rates	19	163	165	123	200	145-180
Maximum rates	21	199	199	135	293	174-225
Typist (lowest level)						
Minimum rates	33	130	130	80	193	109-152
Maximum rates	30	163	162	100	253	146-180
Typist (second level)						
Minimum rates	16	164	162	123	219	150-171
Maximum rates	18	205	197	150	333	179-225
Stenographer (lowest level)						
Minimum rates	32	138	138	100	193	122-156
Maximum rates	29	176	175	135	253	155-185
Stenographer (second level)						
Minimum rates	20	170	171	135	219	151-175
Maximum rates	21	212	205	145	333	187-227
Telephone Operator (lowest level)						
Minimum rates	26	142	144	108	200	125-154
Maximum rates	23	171	171	132	220	151-184
Telephone Operator (second level)						
Minimum rates	13	171	171	141	220	150-179
Maximum rates	12	204	201	176	260	180-214
Accountant (lowest level)						
Minimum rates	21	209	220	100	294	175-244
Maximum rates	19	263	273	150	332	240-315
Accountant (second level)						
Minimum rates	14	258	270	200	330	225-283
Maximum rates	15	342	350	241	433	318-368
Buyer (lowest level)						
Minimum rates	8	253	250	200	325	240-260
Maximum rates	7	318	315	270	365	310-330
Buyer (second level)						
Minimum rates	5	300	300	270	330	285-318
Maximum rates	5	384	398	320	450	345-405
Graduate Nurse (lowest level)						
Minimum rates	21	220	179	96	240	160-210
Maximum rates	20	213	212	152	280	195-233
Graduate Nurse (second level)						
Minimum rates	9	207	202	164	252	195-225
Maximum rates	11	250	240	191	315	228-273
Dietitian (lowest level)						
Minimum rates	16	194	194	160	240	179-204
Maximum rates	15	249	240	195	364	229-272
Dietitian (second level)						
Minimum rates	11	232	233	200	290	203-252
Maximum rates	10	274	273	224	365	249-280

* All wages and salaries have been converted to monthly rates.

CRAFTS AND LABOR

	No. Reporting	Mean	Median	Min.	Max.	Inter-Quartile Range
Laborer						
Minimum rate	25	$134	$130	$ 83	$234	$120-145
Maximum rate	29	172	164	114	364	151-182
Janitor						
Minimum rate	28	137	136	83	234	112-147
Maximum rate	28	170	167	118	240	151-187
Gardener						
Minimum rate	23	161	172	83	251	138-180
Maximum rate	25	200	182	118	424	164-219
Steam Fireman						
Minimum rate	20	181	182	112	265	155-204
Maximum rate	22	216	215	138	285	199-236
Steam Operating Engineers						
Minimum rate	21	220	212	159	305	182-244
Maximum rate	25	262	260	186	450	224-284
Farm Laborer						
Minimum rate	10	127	127	76	165	125-147
Maximum rate	10	164	182	108	191	148-187
Painter						
Minimum rate	24	203	187	130	347	170-225
Maximum rate	29	252	242	185	373	227-260
Policeman						
Minimum rate	23	172	173	100	237	145-196
Maximum rate	24	209	205	149	274	190-225
Carpenter						
Minimum rate	25	217	205	130	407	173-227
Maximum rate	31	254	242	185	427	218-265
Plumber						
Minimum rate	21	229	205	130	413	227-240
Maximum rate	27	269	259	177	433	227-285
Electrician						
Minimum rate	24	228	220	130	402	182-270
Maximum rate	30	268	250	189	455	227-286
Dormitory Maid						
Minimum rate	22	110	107	57	163	95-123
Maximum rate	24	133	126	75	240	121-150
Kitchen Helper						
Minimum rate	25	108	104	62	160	91-125
Maximum rate	25	137	132	75	240	112-164
Waiter						
Minimum rate	13	108	100	62	147	95-140
Maximum rate	12	139	134	83	240	108-165
Waitress						
Minimum rate	17	109	104	62	140	100-130
Maximum rate	17	136	130	83	240	120-147
Watchman or Guard						
Minimum rate	22	154	150	100	220	130-169
Maximum rate	25	187	190	138	240	173-199

MANAGEMENT (Top Job Only)†

Accountant	19	$458	$416	$325	$850	$400-500
Purchasing Agent	22	460	432	283	683	374-500
Business Manager	18	740	691	500	1,042	625-833
Public Information Officer	16	525	516	370	675	475-625
Personnel Director	15	470	408	275	775	375-533
Farm Manager	5	372	333	300	520	
Hospital Superintendent	11	574	575	314	917	445-681
Food Service Manager	21	455	425	250	750	350-583
Residence Hall Manager	12	427	400	275	650	370-490
Buildings and Grounds Superintendent	19	532	516	408	791	450-583

† Compilations of returns for these positions have been on a single rate basis. Too few institutions reported pay ranges to justify compilation of pay range minimums and maximums.

must be taken within a year after it accrues. His sick leave accumulates at the rate of one day for each completed month of service and he may draw upon it as soon as it is earned. His unused sick leave may not exceed a maximum of 62 days, although if he is sick for a long period of time and exhausts his sick leave credit, an exception may be allowed to the maximum accumulation rule.

Mr. Smith receives pay for six holidays each year: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. If he had been a "regular" part-time employe working at least one-half of the full work week he would have been entitled to a prorata share of holidays with pay, sick leave, and paid vacation.

He may attend, on university time, a supervisory training program sponsored and financed by the university, for which an appropriate notation will be made on his personnel record. For problems of adjustment, a counseling service is available to him and, of course, he may go to the personnel office with a grievance at any time.

10 DAYS' NOTICE WITH PAY

He may be granted 15 days' military leave with pay for National Guard or reserve training duty and he may be granted other leaves with pay, not charged to vacation or sick leave, for death in the family, local elections, jury duty, and dental appointments. On his request he may be granted a leave *without* pay for military service and for other specific reasons.

Should it be necessary for Mr. Smith to be laid off for lack of work, insufficient funds, or some other cause not reflecting discredit to him, he would be given 10 days' notice with pay. If he were to be dismissed for cause he would receive 10 days' notice with pay, retaining his right to appeal the dismissal to the personnel office.

As an employe of the university, Mr. Smith may belong to a group life insurance plan that is partially financed by the institution. Although he may not be allowed hospitalization at reduced rates in a university hospital, he is, nevertheless, eligible to become a member of a group medical or health plan that provides hospitalization and takes care of doctors' expenses up to a certain maximum. Immediately prior to his employment, he was given a medical examination at university expense. When he reaches retirement age, he is assured of certain benefits that are the same as those accorded faculty members. He is required to contribute 5 per cent of his earnings to the system. He may retire voluntarily at age 65 after he has had 11 years of service but will be required to retire when he is 70, although an exception under certain conditions may be granted to allow him to continue working after that time.

If he leaves the service before he reaches retirement age, he may withdraw his contributions with interest, but no university contribution will have been added to the amount to be withdrawn. Upon his death, Mr. Smith's dependents will receive no death benefit other than his insurance and retirement contributions.

OTHER PRACTICES

In a few instances in the foregoing description, the typical practice won out over other practices by a majority of only one reporting institution. Some of the other practices frequently found may, therefore, be of interest:

1. A review of the reports on length of the work week, for example, shows that a five and one-half-day, 44 hour week is almost as prevalent as the five-day, 40 hour week and is even more prevalent for the maintenance and custodial groups. The longest work week reported was a six-day, 48 hour week. A decisive difference in working hours for different occupational services was brought out by the returns, *i.e.* office and clerical, administrative and professional groups tended toward the shorter work weeks whereas maintenance and custodial, food service, and hospital groups reflected the longer work weeks.

2. Although the commonest starting and quitting times for all reporting groups were 8 a.m. and 5 p.m., starting times ranging from 8:15 a.m. to 9 a.m. appeared to be nearly as common for the office and clerical, and administrative and professional groups.

3. Had Mr. Smith been an employe in the crafts and labor group, the chances are that his overtime would have been paid for at the rate of time and one-half. On the other hand, if he had been in the administrative and professional group, his overtime would have been "forgotten."

4. Although Mr. Smith's vacation was found to be 15 days per year, a two weeks' vacation was reported nearly as frequently, not only for his group (office and clerical) but for all other groups combined. A period of vacation amounting to one month was most commonly found for the administrative and professional group. Of the 14 institutions reporting cumulative vacation allowances, nine reported maximum accumulations of 36 days or less.

5. The mandatory retirement age of 70 was reported by 17 colleges. A bimodal distribution of replies on this item, however, showed a retirement age of 65 to be almost as frequent (reported by 13 colleges). A voluntary retirement age of 60 was only slightly less frequently reported than the age of 65.

6. Seventeen institutions reported no maximum on the allowance of leave without pay which might be granted, thereby establishing this practice as the most frequent one. In nine agencies a maximum of one year was reported and in six the maximum was three months.

WAGE AND SALARY RATES

Information was received from the reporting institutions concerning current wage rates and salaries being paid across the country to employes in various common classifications. A summary of these rates is given in the table on page 15. More detailed figures showing a geographic breakdown into the Eastern, Southern and Southeastern, Central and Midwest, Mountain and Southwest, and Far Western sections, and including more classes of employment, are given in the previously mentioned full report now obtainable from the association's Urbana office.

The last two questions in the survey asked association members how often they felt that this type of study might be repeated. Considering that these questions were numbered 186 and 187, it was indeed surprising to find that not a single agency checked the "never again" column.

The most frequent response was the request that the survey be conducted on an annual basis, preferably in the spring of the year. Apparently, it has served to underscore for universities throughout the country those areas in which their practice varies from the norm and for many has pointed the way toward a more comprehensive program of employe benefits and services. It should be interesting and worth while to compare the results received from this year's survey with those of future years.

TAXATION OF FELLOWSHIPS

T. E. BLACKWELL
Treasurer, Washington University
St. Louis

A RECENT RULING FROM THE BUREAU of Internal Revenue should sound a note of warning to all college administrators interested in research. Much of the more creative and original work in basic research during the past few years has been done by young men and women financed by the modest stipends paid to them as the result of their having been awarded post-doctoral fellowships.

In the past, these cash stipends have been considered gifts or gratuities and therefore not subject to the federal income tax, if the terms and conditions of the fellowship award satisfied the other necessary criteria for tax exemption. This policy of granting tax exemption was revised by the Commissioner of Internal Revenue in an informal tax ruling dated Nov. 1, 1949: (IT:P:TR-JJT-1) as follows:

"It is generally held that when a recipient of a fellowship who is doing research work as part of his general educational program is acquiring a degree or studying toward completion of his general education (and no consideration is given with respect to such fellowship), the amount received as a stipend constitutes a gratuity, and is not subject to tax for federal income tax purposes. However, when a recipient of a fellowship has completed his general education and pursues a career in his chosen field of endeavor for which he receives remuneration, the amount so received constitutes income for services rendered, and is required to be included in gross income for federal income tax purposes.

"On the basis of the information submitted, it appears that Dr. S. has completed his general education and is pursuing a career in his chosen field, for which he will receive compensation in the amount of $600. Section 22(a) of the Internal Revenue Code defines the term 'gross income' to include, among other things, 'gains, profits and income derived from . . . any source whatever.'

"Accordingly, it is held that the amount received by Dr. S. for this research constitutes compensation for services rendered and is required to be included in gross income for federal income tax purposes."

This adverse ruling should be compared with a ruling on a similar case, received, however, prior to Nov. 1, 1949:

"From the information furnished, it appears that his fellowship award was granted to Dr. Y. to enable him to engage in surgical training, and possibly in research, in a special field in connection with the furtherance of his educational advancement along lines which are of benefit to the general public. It does not appear that any services are to be performed for which this award could be held as partial consideration, and the results of any research that Dr. Y. may engage in will be of no monetary value to anyone. Accordingly, it is held that the fellowship award received by Dr. Y. constitutes a gratuity and not compensation for services, and, therefore, it is not required to be included in gross income for federal income tax purposes."

RULING CHANGED

Formerly it was not necessary for the holder of the fellowship to be a candidate for an academic degree. It was quite enough if his research project would be of "benefit to the general public" and that it was in "furtherance of his educational advancement." Now, if he has received his doctoral degree, the commissioner has ruled that he "has completed his general education" and is pursuing "a career in his chosen field of endeavor."

As a matter of fact, the individuals involved in these rulings have not completed their education. The mere fact that the educational world has not, as yet, evolved or created a degree beyond the doctorate should not be permitted to govern the tax status of these fellowship stipends.

In these days of specialization, a young man may have merely begun his real education when he receives his doctoral degree. Many of the philanthropic foundations supporting pure research have found that the best possible use they can make of their funds is the support of these post-doctoral or research fellowships. To subject the recipients to taxation is to impose an indirect tax upon the foundations themselves, and to curtail sharply research of vital importance to the nation.

Thus we find the federal government, through the instrumentality of taxation, imposing a burden upon pure research, while through other channels, such as the Office of Naval Research and the U.S. Public Health Service, it is spending millions to support it.

It may be worth while to review some of the other requirements that must be satisfied if the fellowship stipend is to be exempt from taxation. It is obvious that the mere use of the word "fellowship" has little tax significance. Many colleges use this terminology in connection with the appointment of graduate assistants. If the recipient is expected or required to perform any service of value to the college, the commissioner has ruled that the stipend is taxable income. However, it is not always easy to define and identify "service of value." Any stipend for work in connection with the instructional program for which the college receives a fee or tuition is clearly payment for services rendered. If the recipient is an employe of the college, the commissioner takes the view that there is a strong presumption that any stipend is in the nature of additional compensation for service rendered, either past or present.

• • •

EDITOR'S NOTE: An error in the title of Dr. Blackwell's article last month implied that college endowments were subject to the payment of life insurance. The word "annuities" should have been used instead of "insurance."

HOW TO KEEP THE FACULTY CONTENTED

General view of faculty apartments at Valley Forge Military Academy.

GRADE A RIB ROASTS OF BEEF, 52 cents a pound, ice cream, 40 cents a quart, five-room and bath apartments for token rents, and first-run motion pictures, admission 20 cents.

Sounds like the depression's hit home, but that's not the case. These and many more extras are part of Valley Forge Military Academy's faculty facilities program.

Maj. Gen. Milton G. Baker, academy superintendent, instituted the program at the school several years ago to augment instructors' salaries and to produce unity among the academy's personnel.

The program, covering every phase of living, is paying off big dividends. The days of faculty unrest, prevalent in both private and public schools throughout the nation, are a thing of the past at Valley Forge. Wholesale turnovers in teaching personnel from one year to the next are eliminated.

Basically, the program provides the necessities and simple pleasures of life at a fraction of their regular cost. Housing, almost as difficult to obtain now as in 1946, is provided on a low-rent basis. Food is obtained at wholesale prices by the faculty members at a commissary operated on a nonprofit basis. The academy laundry also is placed at the disposal of the faculty with fees amounting to less than one-half the normal outside prices. This includes dry cleaning and pressing.

The program also provides medical service and even haircuts. In fact, about the only thing not included thus far is a self-service pump for cut-rate gasoline prices.

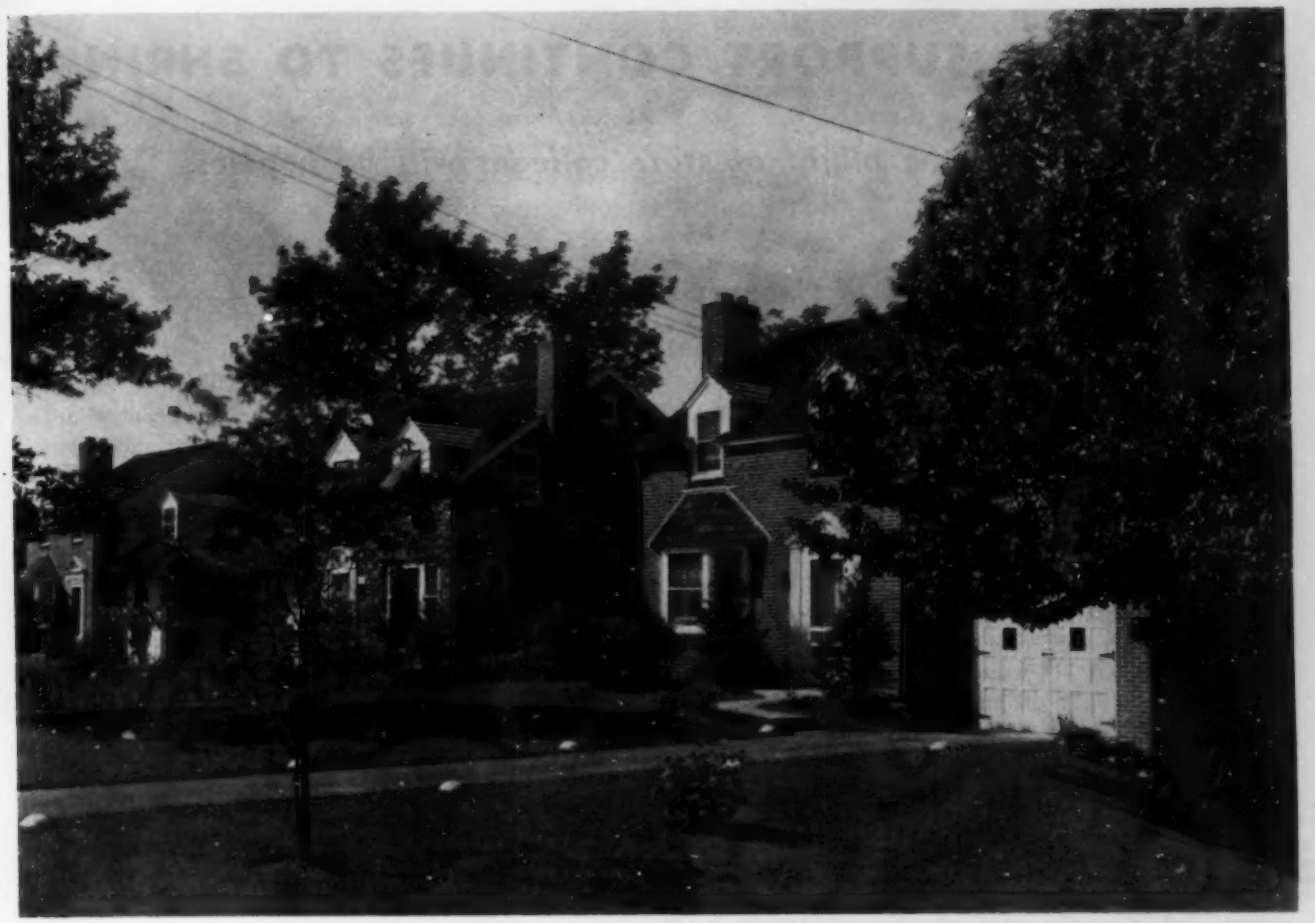
The program was started in 1940 when seven academy financed single homes were erected for faculty members at a location near the school. The war temporarily halted further expansion of the program, but 20 garden type apartments were constructed in 1946. In addition, quarters were provided for 20 bachelor instructors in a renovated home adjacent to the academy grounds, and temporary homes were built during the war for an additional 10 families. Every member of the faculty requiring housing has a place to live.

The commissary was started in 1948 when the price of meat and other foodstuffs soared almost out of the reach of a teacher's pocketbook. It offers meats, canned goods, fresh and frozen vegetables, fruits and even pastries and ice cream at wholesale prices. The academy absorbs the maintenance cost. The commissary operates in conjunction with the academy's mess or cafeteria, therefore affording the low prices of mass buying.

Twice weekly, the more than 75 staff and faculty members receive a commissary price list and order blank. This is filled in and returned to the mess steward; then foodstuffs are packaged for the next day's delivery. Trips to the store and the usual waiting for service are eliminated. Patrons are billed monthly.

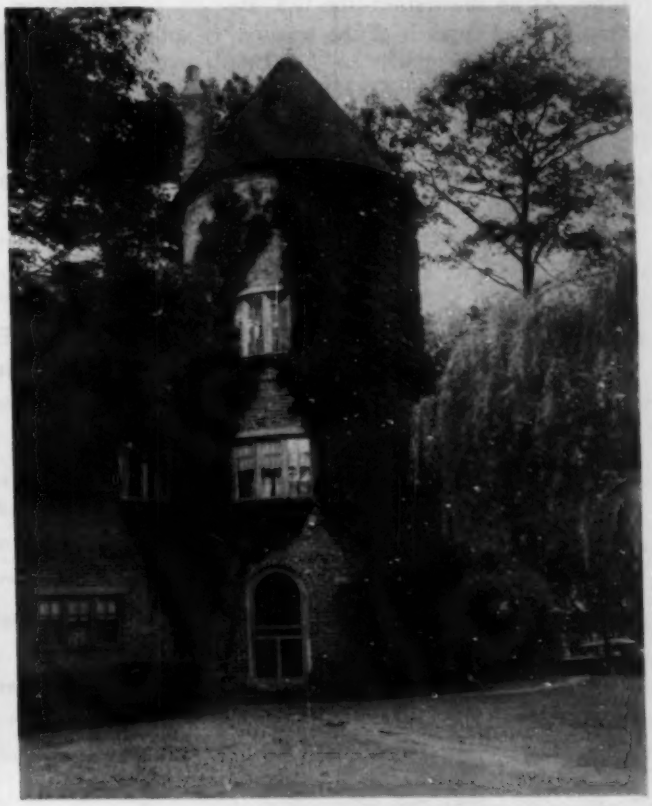
Particular attention also is paid to entertainment. There are monthly dinner dances, weekly card parties, and Saturday night movies. The only charge made is for the last, 20 cents admission for first-run features plus the extras.

ERNIE RAUM
Director, Public Relations
Valley Forge Military Academy
Wayne, Pa.



Faculty Village: Single homes constructed for instructors in 1940.

Entrance to one of five garden type of apartment houses.



Converted home used to house 20 bachelors on the academy staff.

IF STATE SUPPORT CONTINUES TO SHRINK

by 1969 the plight of state colleges will be hopeless

ROBERT L. WILLIAMS
Assistant to the Provost
University of Michigan

IT IS MY PURPOSE TO DESCRIBE THE relationships that exist between the services rendered by state supported colleges and universities and the financial support received by these institutions between 1929 and 1949, and to project, insofar as possible, the probable calls for service and support that will be made in the next 20 years.

ENROLLMENTS WILL BE LARGER

Three factors continue to emphasize the larger enrollments that we may expect in the future: (1) the increase in the birth rate; (2) the anticipated increase in the holding power of the public schools, particularly in the upper high school grades; (3) the increase in the social appreciation of education.

Each of these three factors will vary somewhat during the years but, acting as a unit, it is clear that they will tend to create enrollments in the future that are too large to be generally accepted or even contemplated at this time. As an illustration, the U.S. Bureau of the Census is of the opinion* that in 1960 there will be 7,700,000 more pupils in elementary schools than were enrolled in April 1947. This is an estimated increase of 42 per cent. It is also estimated that 1,845,000 more students will be enrolled in high school in 1960 than in 1947. This is an increase of 29 per cent. These increases make it clear that increasingly large enrollments may be expected at the college level after 1960.

There has been a serious decline in the financial support of higher education in the 20 years from 1929 to 1949. The history of support during this 20 year period is one of rapid decline for a few years following 1929, followed by some years of slow recovery; so slow was the recovery movement that by 1939 financial support had not returned to the 1929 level.

By 1949 the enrollment in state supported colleges and universities had virtually doubled, and the cost of living had increased from 100 to 175, with the result that state appropriations for higher education, while larger in dollars, actually left the colleges and universities in the position of caring for a much larger student body with less "real" money.

This statement regarding the inadequacy of financial support is based upon a comprehensive analysis of appropriations to and enrollments in all state supported institutions in 1929, 1939 and 1948 in 20 states. The data collected are in terms of total enrollment in state supported institutions and the total of state support to the education institutions. The data constitute a serious challenge to the present level of state support.

General trends from the voluminous data collected regarding the 20 states are indicated in the table.

The data presented clearly indicate:

1. Enrollment in state supported colleges and universities increased an average of 154 per cent in 20 states between 1929 and 1949 (range 25 to 300 per cent).

2. During the same 20 year period gross appropriations (the total appropriations without any adjustment for the value of the dollar) increased an average of 162 per cent in the same 20 states (range 25 to 400 per cent).

3. The average appropriation per student enrolled in state supported institutions (the gross annual appropriation divided by the annual enrollment of the academic year) in the 20 year period increased 16 per cent (range —50 to 100 per cent).

4. Changes also occurred in the cost of living in this 20 year period. When allowances are made for this upward movement, it is seen that appropriations in 20 states have decreased an average of 14 per cent per student enrolled between 1929 and 1949 (range —50 to 50 per cent).

5. Enrollments have increased, the appropriations have increased, the average appropriation per student enrolled has increased, but in view of the increase in the cost of living, the increased appropriations have failed to keep up with the increase in enrollments and other services rendered by state supported institutions.

The greatly increased enrollments of 1969 cannot be accommodated unless (1) the trend of the last 20 years toward lower appropriations is reversed, and (2) increased appropriations are made in proportion to the job to be done.

There is probably no area of state service that has been forced to operate

Trends in Enrollment and State Support From 1929 to 1949 in State Supported Colleges and Universities in 20 States

	1929 TO 1939 Per Cent	1939 TO 1949 Per Cent	1929 TO 1949 Per Cent
RANGE OF INCREASE			
Enrollment	—25–50	25–150	25–300
Gross appropriation	—25–25	50–300	25–400
Average appropriation per student enrolled	—50–25	—25–200	—50–100
Average student appropriation in 1948 dollars	—25–25	—50– 50	—50– 50
AVERAGE INCREASE			
Enrollment	34	67	154
Gross appropriation	—10	188	162
Average appropriation per student enrolled	—34	69	16
Average student appropriation in 1948 dollars	—15	—3	—14

*Foster, Emery M.: The Seriousness of the Public School Situation, Federal Security Agency, Circular 249, January 1949.

during the last 20 years on a declining level of support to the same extent as have the state supported colleges and universities. The prospects for the immediate future are not bright and the prospects for 1969 appear hopeless unless the level of support can be raised some in each year—to such an extent that 20 years from now we will be ready to meet our full obligation to the students enrolled.

The states included in this survey are: Arizona, California, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Michigan, Mississippi, Missouri, Montana, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Dakota, Washington.

The bases of computation are:

1. All state appropriations to colleges and universities for operating expenses were included.

2. Appropriations for junior colleges were not included unless the college is a part of a state system rather than a local educational system.

3. Appropriations for capital outlay were not included.

4. Only *net* appropriations were included. Income from tuition and fees that enter the state treasury and are then reappropriated were not included.

5. State appropriations to land-grant colleges for agricultural extension and experiment work were included—in part because some states make a lump-sum appropriation to the land-grant institutions without identifying any portion of it for agricultural extension or experiment services.

6. The cost of living index used for 1948 was 164. In 1948 the index rose to 175. At the time the appropriations were made for the academic year 1948-49, the index stood at 164. The use of 164 rather than 175 may not be absolutely fair to both sides of the question, but it has the advantage of not overstating the need for additional appropriations.

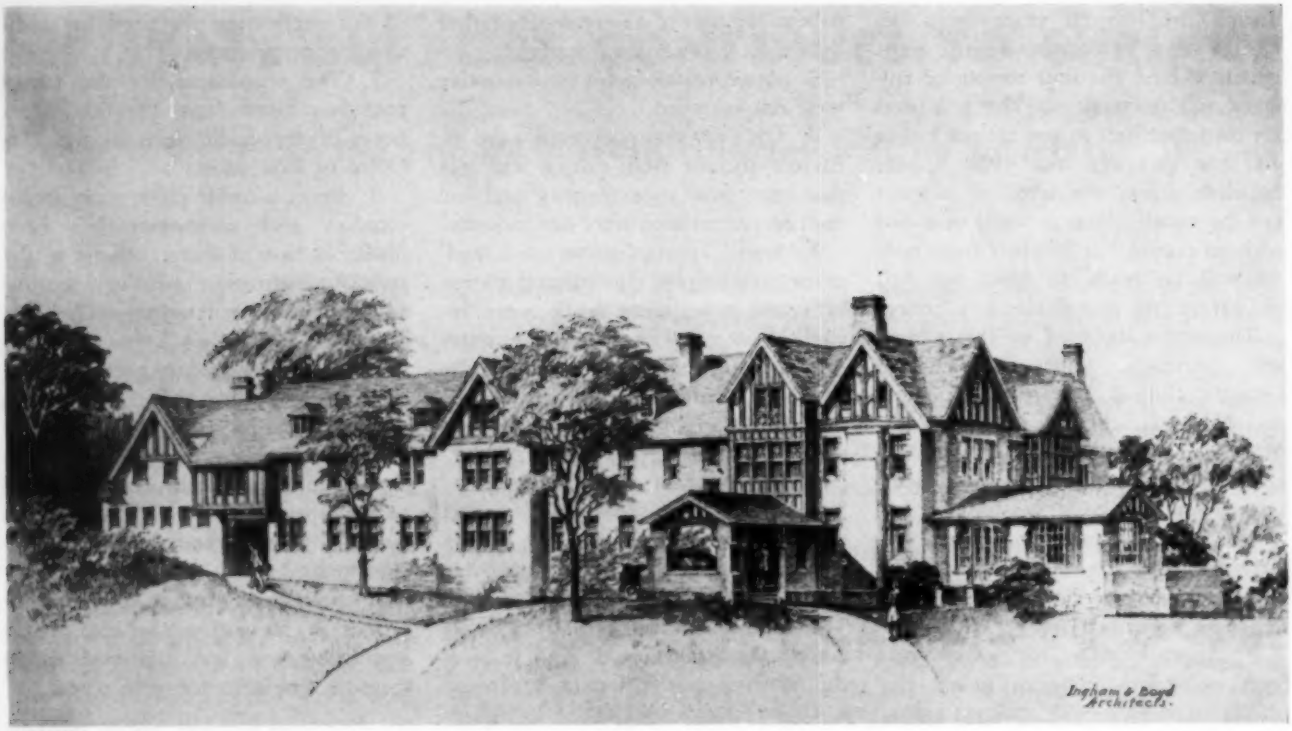
7. The enrollment for the school year was taken from the official reports of the institutions to the U.S. Office of Education.

8. Every possible effort to maintain accuracy and uniformity has been made. In case of doubt, officers of the state or institution were written for advice and interpretations. The data presented include no known discrepancies or errors in interpretations.

There are admittedly certain difficulties in basing an argument of the type presented primarily upon the enrollment of the institution as related to the annual appropriation received by the institution and the per student appropriation. On the other hand, enrollment is certainly one of the major factors in measuring the load of an institution and was the best *single* measure available for this report.

Survey of Building Costs Conducted by College and University Business

College	Function	Type Construction	Total Cost	Total Cubage	Cubic Foot	Contract Cost for			Approximate Wage Rate					Date of Contract Award 1949
						Gen. Construction	Heating, Plumbing	Electrical	Electricians	Bricklayers	Masons	Plumbers	Carpenters	
Christian Brothers College	Faculty Housing Administration Bldg., College Classrooms	Reinforced concrete	$354,851	355,000	$1.27	$279,679	$33,641 $24,758	$16,773	$3.50	$3.00	$3.00	$2.37½	$1.90	April
Black Hills Teachers College	Men's Dorm., Student Center	Steel, brick	350,000	260,000	1.35	224,920	85,700	19,231	Unknown	Unknown	Unknown	Unknown	Unknown	Aug.
Queens College (Charlotte, N.C.)	Chapel	Brick, steel	153,271	202,000	0.76	132,600	9,864 1,133	9,674	1.85	2.25	2.25	2.12½	1.85	July
State Teach. Coll. (Fredonia, N.Y.)	Dormitory, Student Union	Brick	963,622	925,000	0.93	675,379	75,000 61,243	52,000	2.25	2.25	2.25	2.15	2.10	July
Univ. of Houston	Library	Concrete frame, stone faced	1,201,941	1,384,974	0.86	862,000	247,826	92,115	2.37	2.62	2.62	2.37	2.12	July
Univ. of Houston	Dormitory	Concrete frame, stone faced	3,203,907	3,315,000	0.96	2,182,482	690,100	198,907	2.37	2.62	2.62	2.37	2.12	Aug.
State Univ. of Iowa	Library	Steel frame	1,614,866	1,325,000	1.22	1,284,330	222,495	96,438	2.50	2.65	2.65	2.50	2.10	Mar.
State Univ. of Iowa	Dormitory	Concrete	330,554	275,000	1.20	279,474	39,780	11,300	2.50	2.65	2.65	2.50	2.10	Sept.
Western State Coll.	Apartments for Faculty	Cinder block	140,034	143,860	0.97	122,236	17,798	122,236	1.75	2.65	2.65	2.00	1.85	Aug.
Miss. State Coll.	Library	Concrete frame, brick and stone exterior	950,000	663,000	1.43	746,218	89,502	63,021	1.75	2.00	2.00	1.75	1.50	Mar.
Miss. State Coll.	Boys' Dorm.	Concrete frame, brick and stone exterior	180,000	348,040	0.52	145,916	20,001	4,355	1.75	2.00	2.00	1.75	1.50	July
Miss. State Coll.	Engineering Laboratory	Concrete foundation, masonry walls, brick and tile	450,000	562,800	0.80	333,247	35,870	58,000	1.75	2.00	2.00	1.75	1.50	June
Miss. State Coll.	Gymnasium	Steel frame, exterior brick and metal panels	550,000	693,268	0.79	427,472	65,778	26,450	1.75	2.00	2.00	1.75	1.50	July
Miss. State Coll.	Agricultural Engineering Bldg.	Concrete footings, masonry walls, prefab. roof	210,533	502,026	0.44	163,506	18,625	16,485	1.75	2.00	2.00	1.75	1.50	Aug.
Univ. of Missouri	Chemistry Laboratory	Stone, concrete	388,092	205,470	1.89	270,123	32,471 51,998	33,500	2.00	3.00	2.25	2.25	1.80	Aug.
Univ. of Missouri	Men's Dorm. S.W. Wing	Stone, concrete	691,000	570,825	1.21	523,000	140,000	28,000	1.75	2.50	2.25	2.00	1.65	Nov.
Univ. of Missouri	Men's Dorm. S.E. Wing	Stone, concrete	790,250	570,825	1.38	604,250	154,000	32,000	1.75	2.50	2.25	2.00	1.65	Nov.
Univ. of Missouri	Men's Dorm. N.W. Wing	Stone, concrete	719,750	570,825	1.26	545,750	145,000	29,000	1.75	2.50	2.25	2.00	1.65	Nov.
Univ. of Missouri	Cafeteria, Dorm.	Brick, concrete	1,421,676	875,012	1.62	1,071,809	283,500	66,367	1.50 1.75	2.00 2.50	2.25 2.25	2.00 2.00	1.50 1.65	July Oct.
Univ. of Missouri	Stadium	Concrete	174,000	Unknown		174,000	None 15,000	32,000	2.00	3.00	2.25	2.25	1.80	June
Univ. of Missouri	Gymnasium	Stone, concrete	317,177	184,015	1.72	230,145	45,532 30,838	10,662	2.00	3.00	2.25	2.25	1.80	June



AFTER

REMODELING JOB *increases occupancy of former mansion; now it is residence hall for 105 girls*

BEFORE

SEVERAL YEARS AGO IT BECAME EVIdent to Pennsylvania College for Women that additional living accommodations would be required to provide for an increasing enrollment. Consideration was given to the building of a new residence hall, but it was decided that the most practical and economical plan would be to enlarge Fickes Hall, one of the student resident houses, by joining it to the garage that stood about 100 feet behind the house.

This three-story 20 room house, of English Tudor style, had been built in the early 1900's and stood on a 2 acre lot on the opposite side of the road from Andrew Mellon Hall, a residence hall and the social center of the college. Fickes Hall was given to the college in 1943 and was used as living quarters for only 20 students from 1943 to 1946.

To operate this residence for 20 students, the services of a full-time maid, a janitor, and a part-time maid were required. Since the students took care of their own rooms, except during the vacation periods when they

HANNA GUNDERMAN
Bursar
Pennsylvania College for Women

were given a thorough cleaning, most of the maids' time was spent in cleaning the first floor social rooms and the old-fashioned bathrooms. The janitor was employed with heating and maintenance problems of the building and grounds. The operating costs of such a spacious building were obviously very high.

Plans were drawn by the architects, Ingham, Boyd and Pratt, for joining the house and garage with 26 single rooms and 28 double rooms to accommodate 105 students instead of 20. The original well built garage was converted to a kitchen and dining room with living quarters for a maid and a cook on the first floor and student rooms on the second and third floors. The house director's suite of rooms is now on the first floor directly opposite the main entrance to the building. The appearance of the house from Woodland Road remains unchanged, but the building is longer and looks like a residence hall from the side view.

In remodeling, particular care was taken to provide the facilities and the furnishings to keep maintenance costs at a minimum. Since the original social rooms were entirely adequate for the large quarters, it is now possible to operate the residence hall for 105 students with practically the same maintenance staff that formerly had been required.

A modern system of heating was installed; much of the ground that used to demand the janitor's attention is now occupied by the driveway. Although basic wage rates of the maintenance staff have increased more than 10 per cent and unit costs of supply items have almost doubled in many cases, the operating cost of the building has decreased approximately 20 per cent per student.

The bedrooms of the original house are extremely large, comfortable and light; to keep the rooms of the new addition comparable, they are likewise larger than most college bedrooms. The walls are painted ivory, green, or peach—tints that harmonize with every color. The floor covering is a neutral shade of battleship linoleum, which is easy to keep clean, and the girls supply their own scatter rugs.

Casement windows, of the same general design as the windows of the house, are provided with shades of a washable material and the students supply their own curtains and draperies.

The maple furniture is of a simple and attractive design, similar to that used throughout the college residence halls. Hollywood beds with headboards, a dresser, a study desk, and chair comprise the room furnishings.

Each girl has her own clothes closet, which is particularly roomy, averaging 4 by 6 feet. Each closet is provided with two rods placed at unequal distances from the floor to accommodate evening clothes as well as street and sport clothes. Adequate shelves for hats and shoes, as well as towel bars, are all a part of each lighted closet.

Other features providing minimum maintenance costs, as well as the most modern conveniences, are small kitchenettes where students can prepare evening snacks. Each is equipped with electric hot plate, sink and refrigerator. Each floor also has a small laundry for the students' use in washing hose and lingerie. Drying racks, irons and ironing boards are provided in each laundry.

In the center of the second and third floors, with entrances from each side, are large bathrooms. These marble partitioned bathrooms have both showers and tubs, and the mirrored walls above the wash basins make the rooms appear even larger than they really are.

The conversion of the garage into an electrically equipped kitchen and modern dining room is one of the most interesting phases of the improvement. Breakfast and lunch are served cafeteria style; the food is kept at the proper temperature in electric warmers. An electric dishwasher in the pantry lightens the kitchen helper's work.

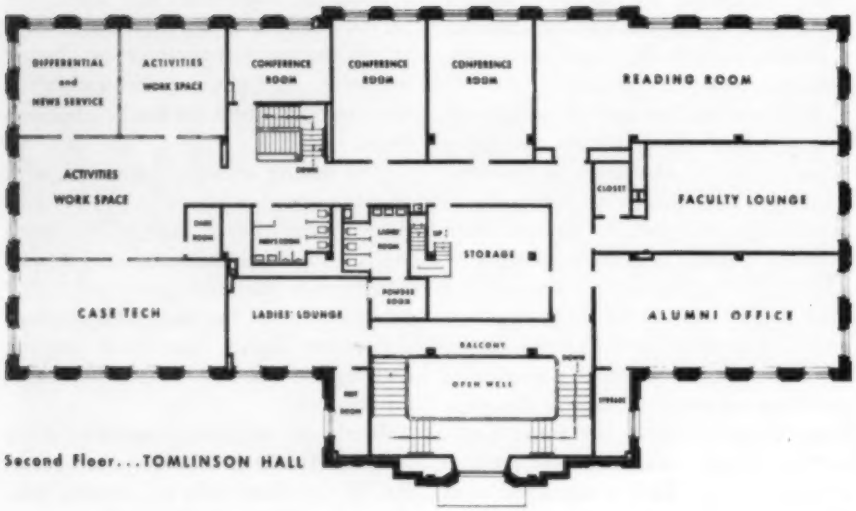
The dining room is furnished with blond painted tables and chairs with lime green leather seats. The walls are a blending shade and the striped draperies of rose and green add to the attractiveness of the room. The recessed fluorescent lights, acoustical ceiling, and asphalt tile floors are other modern features.

With an additional investment of only $270,000 in the physical plant, P.C.W. has been able to increase residence enrollment by 85 students, at a unit cost of $3200, including furnishings, and the cost of operation of Fickes Hall has decreased 20 per cent per student. This is possible mainly because the new addition was planned to include the most modern labor saving facilities so that no additional maintenance staff is required.

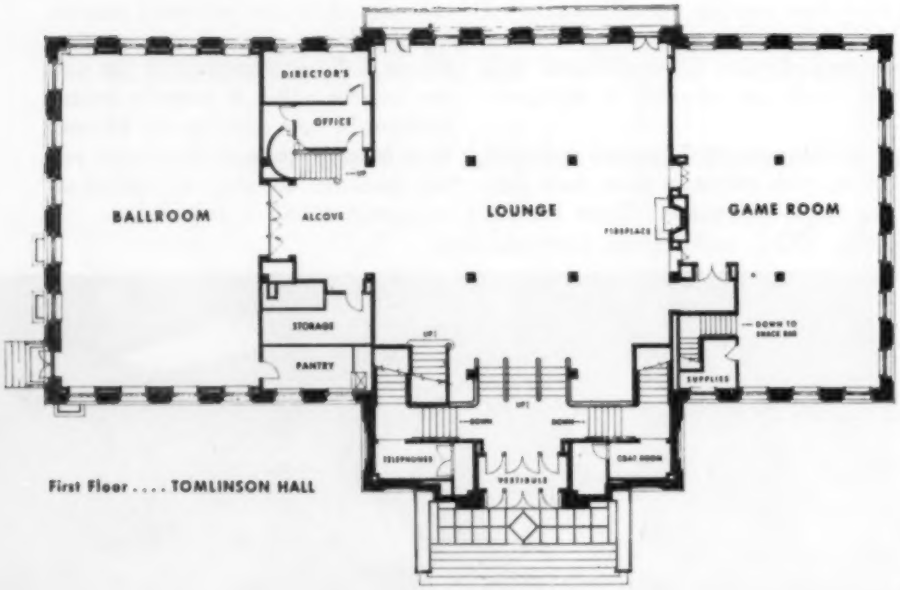
What was once a garage now houses an electrically equipped kitchen and large dining room.

UNION BUILDING at Case eliminates the

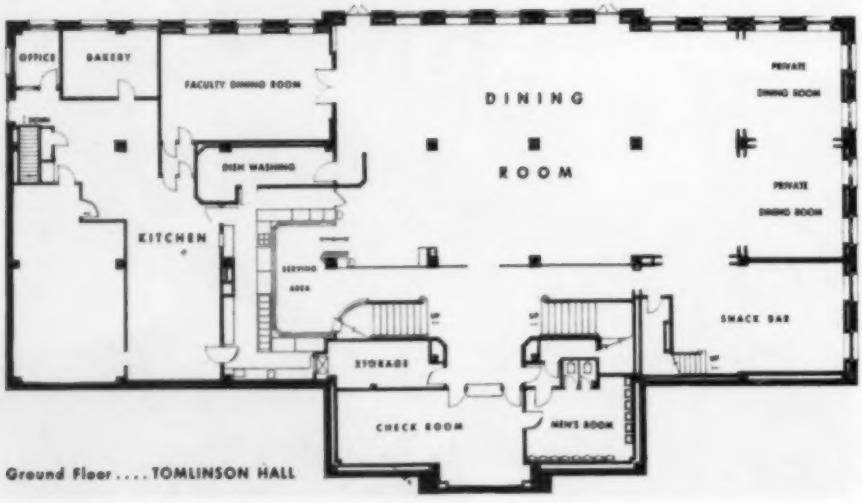
FRANK NOFFKE
Former Director, Tomlinson Hall
Case Institute of Technology



Second Floor...TOMLINSON HALL



First Floor.... TOMLINSON HALL



Ground Floor.... TOMLINSON HALL

THE STUDENT BODY AND FACULTY OF Case have enjoyed the pleasures of a fully rounded campus life for almost two years now in the beautiful student union building dedicated in May 1948.

Mrs. George Ashley Tomlinson, in giving Tomlinson Hall as a memorial to her late husband, filled one of Case's greatest physical and social needs. For years the students and faculty at Case, the present enrollment of which is 1600, had no facilities for lounging or recreation and had to go off campus for meals. Tomlinson Hall has now become the teeming center of campus life, with its lounges, ballroom, game room, cafeteria and student activities center. Other facilities include a library, conference rooms, the alumni office, and the information desk.

LIMESTONE EXTERIOR

Outstanding in its bold limestone architecture and interior beauty, Tomlinson Hall takes a prominent place among neighboring cultural buildings of the University Circle area in Cleveland, including the Cleveland Art Museum; Severance Hall, home of the Cleveland Symphony Orchestra, and the Amassa Stone Chapel of Western Reserve University.

Situated at the crest of gently sloping lawns, the Indiana limestone structure opens two of its three stories onto the campus; the back rises three stories from the lower level of a boulevard. Three bands of large windows encircle the building and set off the massiveness of the limestone walls. The entrance is made prominent by a marquee, above which is a large picture window extending the height of the second and third floors.

Tomlinson Hall's interior is decorated in the style of an exclusive men's club, with oak paneling, stippled walls, carpeted floors, and deep, luxurious furniture. In the words of one student, "Before, we had to struggle to have any kind of a successful affair;

former streetcar college atmosphere

now, in Tomlinson Hall, everything turns to gold!"

The much needed facilities of the building have been put to full use by the student body. The board of managers, a student group created to plan and administer the student program, has provided a series of daytime events in the form of noon movies, record concerts, coffee hours, tea dances, tournaments and lessons in the social skills. The faculty, as well as student organizations, uses the conference rooms and the ballroom for business meetings and parties. Tomlinson Hall has become a campus crossroads, the right place to meet.

On the first floor are located the lounge, which is really the campus living room, and the ballroom, used ordinarily as a lounge but also used as an auditorium, supper club, movie theater, and concert hall. The game room has two billiard tables, three ping-pong tables, and many card tables. The problem of what to do with the overflow of card players is solved by setting up card tables in the lounge and ballroom.

PERMANENT MASTER CALENDAR

The student activities center, located on the second floor, occupies one entire wing. Besides offices for the activities staff, publications and student governing groups, there is a central work space equipped with duplicating facilities for all campus organizations. A permanently constructed master calendar for the recording of all campus events and meetings occupies one wall. Three conference rooms, opening off the upper corridor, have been acoustically treated. This floor also contains two beautifully furnished lounges, the faculty lounge, and the ladies' lounge. The office for the alumni association also is located here.

The Tomlinson Memorial Library, which will rank with the most beautiful, houses the donor's collection of classics. Intimacy and atmosphere are provided in this walnut paneled room by its virtual division into three sections by means of jutting islands of bookcases. Carpets and deep chairs provide restful reading conditions.

The entire ground floor is occupied by food service facilities, which include the cafeteria, the snack bar, private dining rooms, faculty dining room, and the kitchen. The partial subbasement contains equipment and employes' locker rooms. Regular cafeteria service for three meals a day is main-

Tomlinson Hall is situated at the crest of gently sloping lawns. Two of its three stories open onto the campus; the back rises three stories from the lower level of a boulevard.

tained, as well as a special parties service.

The cafeteria counter is of stainless metal and includes a counter guard. Tables with tan formica tops along with chrome plated tubular steel chairs with brown plastic seats and backs furnish the room. The walls are of cream colored glazed tile and paint.

The key staff members are: the director, food service manager, building supervisor, activities' counselor, and a secretary in charge of scheduling and administrative routines. The normal traffic flow is 2000 daily. It is estimated that 150,000 meals were served during the first year of operation.

In addition to its beauty and fine furnishings, following are seven other features of the building:

1. The information desk. Here a built-in radio and phonograph system provides programs for five areas of the building. There are two channels over which either radio or record programs can be played. Reciprocally, microphones can be set up in several areas, and the programs sent to other parts of the building. The desk is manned by students.

2. The pantry off the ballroom, for serving light refreshments.

3. The darkroom in the student activities work space where photographic equipment is available to the entire student body.

4. A revolving bulletin board, providing equally prominent location for posters and advertisements in the minimum space.

5. Folding doors between private dining rooms and the snack bar.

6. A central stairway sweeping around a large well in front of the big picture window.

7. Recessed lighting from behind pillars of the main lounge.

Tomlinson Hall has provided more than a campus home. Its facilities have made possible personal development and the teaching of management and leadership by experience through student union activities. The effect of Tomlinson Hall on the campus is that it has removed the streetcar college atmosphere and brought traditional college life to Case.

Two years' operation of the student union has shown that the building could be larger, but Case is glad to have its crying need so well met and can testify, also, to the values student unions afford in teaching young people to live and to work together.

Details of Construction

CONSTRUCTION: Footings and foundation walls, reinforced concrete. Floors and roof, reinforced concrete on reinforced concrete frame. Exterior walls, Indiana limestone, backed with brick. Main entrance trimmed with Minnesota pearl gray granite. Interior partitions, hollow tile. Doors, windows and frames, wood. Two main stairs, steel construction with precast terrazzo treads and marble risers. Service stairs, steel construction with terrazzo or cement treads. Fireproof structure. Ceiling heights, 11'5"; floor dimensions, 150' by 60'; square footage, 27,000.

FLOORING: Cafeteria, private dining rooms, canteen and check rooms, terrazzo; game room, asphalt tile; main lounge, asphalt tile with carpeting; ballroom, wood parquet with carpeting. Memorial Library, carpeting; faculty and ladies' lounge, asphalt tile with carpeting; all other offices, meeting rooms, etc., on second floor, asphalt tile; toilet rooms throughout, terrazzo; service areas, including kitchen, cement finish.

WALLS: Buff colored glazed tile in kitchen areas, floor to ceiling. Cafeteria, canteen and private dining rooms, light colored glazed tile wainscot, 5 feet high, plaster above. Toilet rooms, light buff glazed tile, floor to ceiling. First floor lounge, white oak wainscot, 5 feet high, marble base. Ballroom, white oak base and wainscot, 5 feet high. Memorial Library, American walnut paneling, book shelving and cases, floor to ceiling. All other rooms and areas, plaster. Service areas, masonry painted.

CEILINGS: Acoustical treatment in cafeteria, private dining rooms, canteen, game room, Memorial Library, and meeting rooms. Ballroom ceiling, rubbed concrete beams and slabs with applied painted decorations. All other rooms and offices, except service areas, plaster finish ceiling on metal lath. Service areas, concrete construction, painted.

LIGHTING: Kitchen and toilet room areas, standard glass bowl lighting fixtures with incandescent lamps. Main lounge, recessed fluorescent fixtures with decorative plaster coves around four columns equipped with incandescent spots for indirect lighting. Ballroom equipped with a continuous row of small diameter fluorescent tubes. Surface mounted and pendant mounted fluorescent fixtures in all other rooms throughout the building, except in service areas. Service areas equipped with glass bowl or open metal reflector fixtures. Lounges, ballroom and Memorial Library, floor and table lamps for auxiliary lighting.

HEATING: Low pressure steam furnished from central heating plant. Convector type radiation in all rooms with central automatic control system.

PIPING: Except in cafeteria, ballroom, lounges, game room and Memorial Library, all supply and return steam piping exposed.

VENTILATION: Exhaust and supply fan units for entire building located in roof penthouse. Main entrances, blower type unit heaters at each side of entrance. Kitchen, cafeteria, canteen, private dining rooms, and ballroom equipped with both supply and exhaust units. Game room, main lounge, exhaust units only. Toilet rooms throughout, exhaust system.

DUMB-WAITER: Completely automatic dumb-waiter from ground floor cafeteria service counter to first floor pantry. Dumb-waiter doors and cabs, stainless metal.

GENERAL: Toilet room partitions throughout, metal with baked enamel finish. Basement, built under approximately 11 per cent of ground floor area at south end of building and accessible from kitchen, houses mechanical equipment and kitchen employes' locker rooms and toilet rooms, which are completely ventilated by the general ventilating system. Transformer vault located in basement.

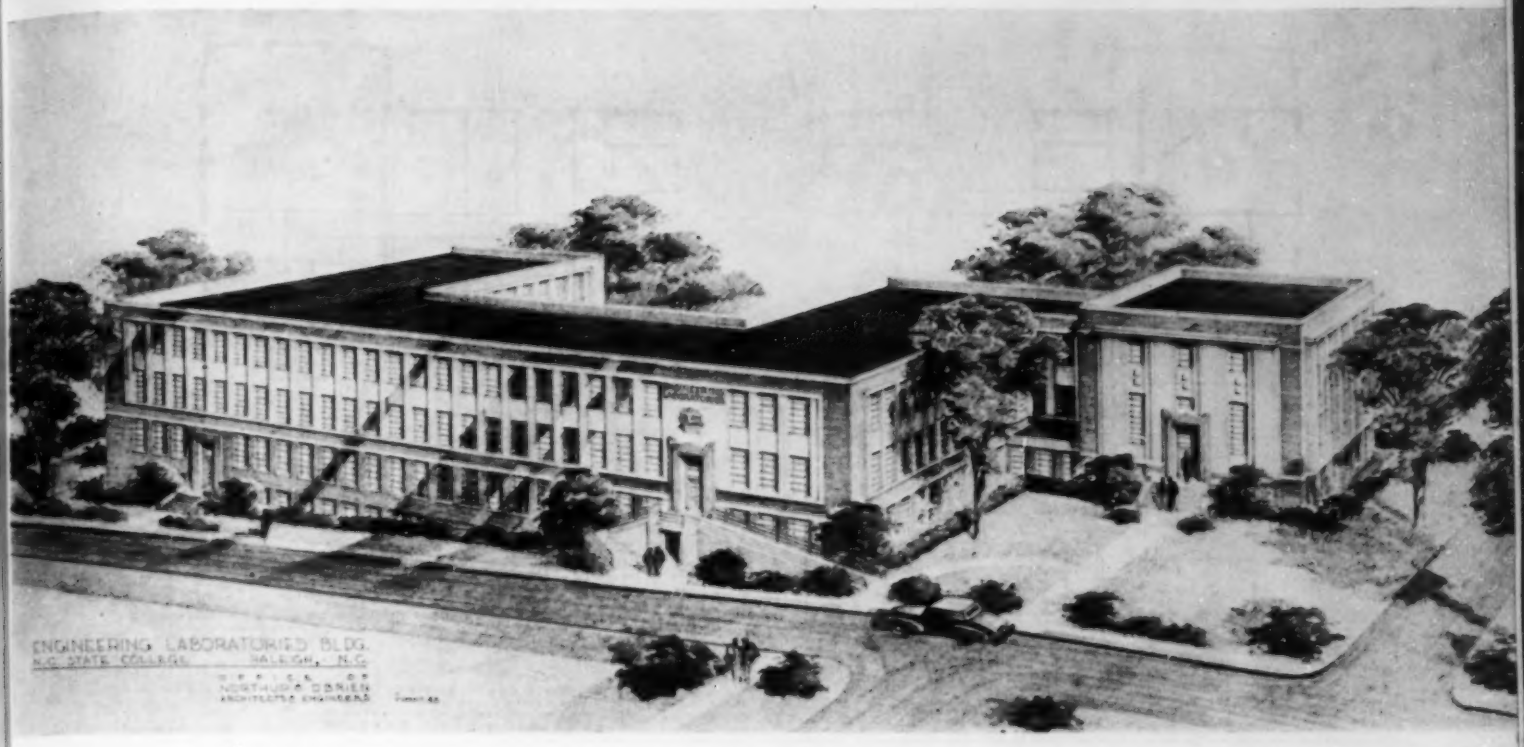
Windows and exterior doors throughout equipped with weatherstripping; windows have venetian blinds. Windows in kitchen, cafeteria, private dining rooms and canteen equipped with aluminum frames and screens.

Kitchen equipment with three walk-in type mechanical refrigerators and two mechanical cabinet type refrigerators. Cafeteria service counter, stainless metal throughout, with electric warming units and refrigerating units.

Two main stairs built with marble wainscots and stringers with painted steel railings and white oak wood handrails.

Main lounge designed with wood-burning, marble trimmed fireplace, fully equipped with screen, andirons, etc.

COSTS: General construction, plumbing, heating, ventilating, electric wiring, site work and landscaping, kitchen equipment, floor coverings and carpetings, draperies, furniture—$749,500, or $1.53 per cubic foot. Architect's fees, costs of land, certain miscellaneous equipment and furniture, radio and loud-speaker equipment, and pianos are not included in foregoing costs.



Plant for ENGINEERING *laboratories and research*

J. H. LAMPE
Dean, School of Engineering
North Carolina State College

INDUSTRIAL ACTIVITIES IN NORTH Carolina have been growing by leaps and bounds until the state now has more industrial than agricultural workers. Hand in hand with this development has been an expanding interest in engineering training and science. This development has brought to the engineering school at North Carolina State College, Raleigh, increased enrollment and growing activities in engineering laboratories and engineering research, all in the service and interest of state needs.

The inadequacy of the existing facilities was evident. The 1945 legislature earmarked certain funds in the amount of $2,215,333 for the construction of a new engineering laboratories building, a new mechanical engineering building, and a wing to the electrical engineering building. Construction is now taking place on a $1,300,000 general engineering laboratories building of 1,264,200 cubic feet. Northup and O'Brien of Winston-Salem are the architects and engineers.

In external appearance and construction features, the building adheres to the over-all development plan of the college. It will be of fireproof construction, consisting of a steel frame and reinforced concrete ribbed slab floors and roof. The structural system is based on uniform 14 by 28 foot panels throughout, with minor exceptions.

Exterior materials will be locally selected machine made, sand finished face brick. Limestone trim and sculpture will be generally used, but there will be Minnesota and local granite entrances.

LITTLE PLASTERING

The backing for the exterior walls and the interior partitions is cinder concrete blocks, pointed and painted. The base course in each room is salt glazed tile. Plastering is held to a minimum, being used in the administrative suite only.

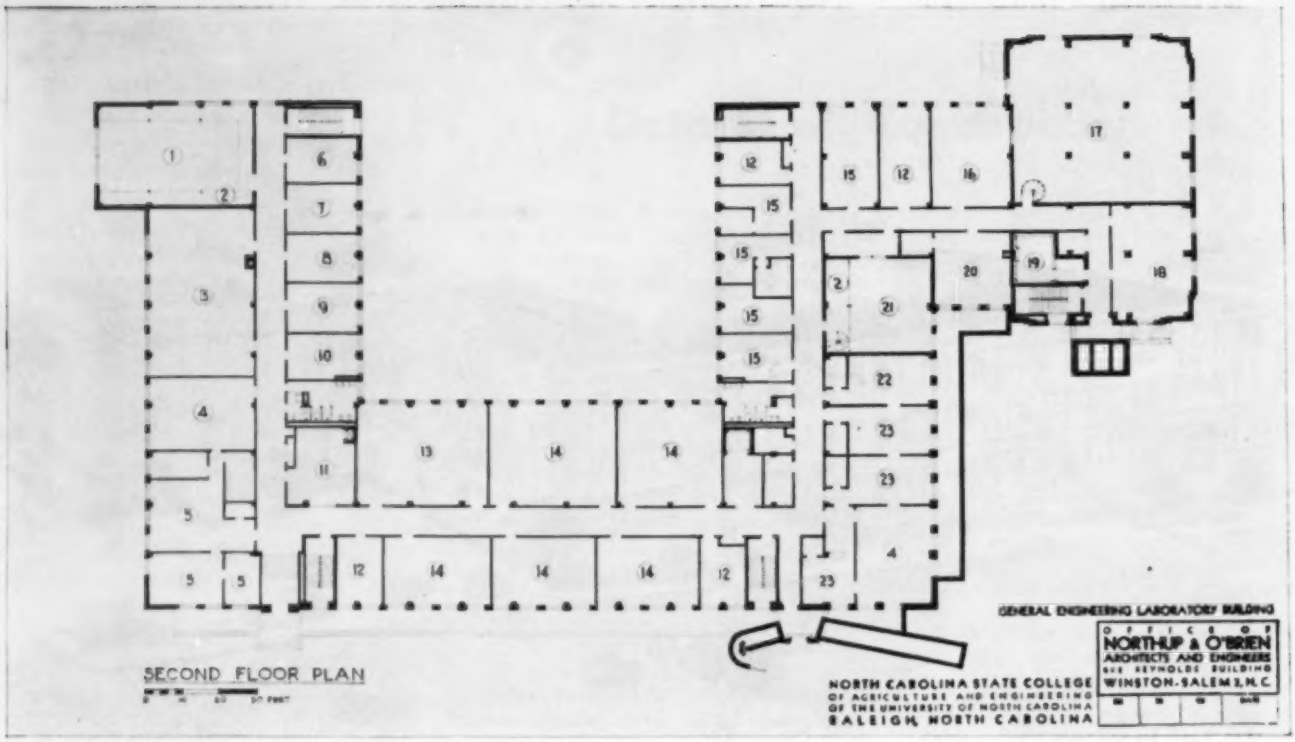
There will be terrazzo floors throughout the building except in the heavy laboratories on the first floor, where cement topping will be used. Terrazzo will be applied before partitions are built for economy in terrazzo work and to permit relocation of partitions in the future. Ceilings throughout the building will be acoustically treated by use of perforated cane tile.

U shaped, the new structure will be built around and joined to an existing one-story building. The west leg is extended to include a large lecture room. Above it is adequate space for a modern high frequency electronics laboratory.

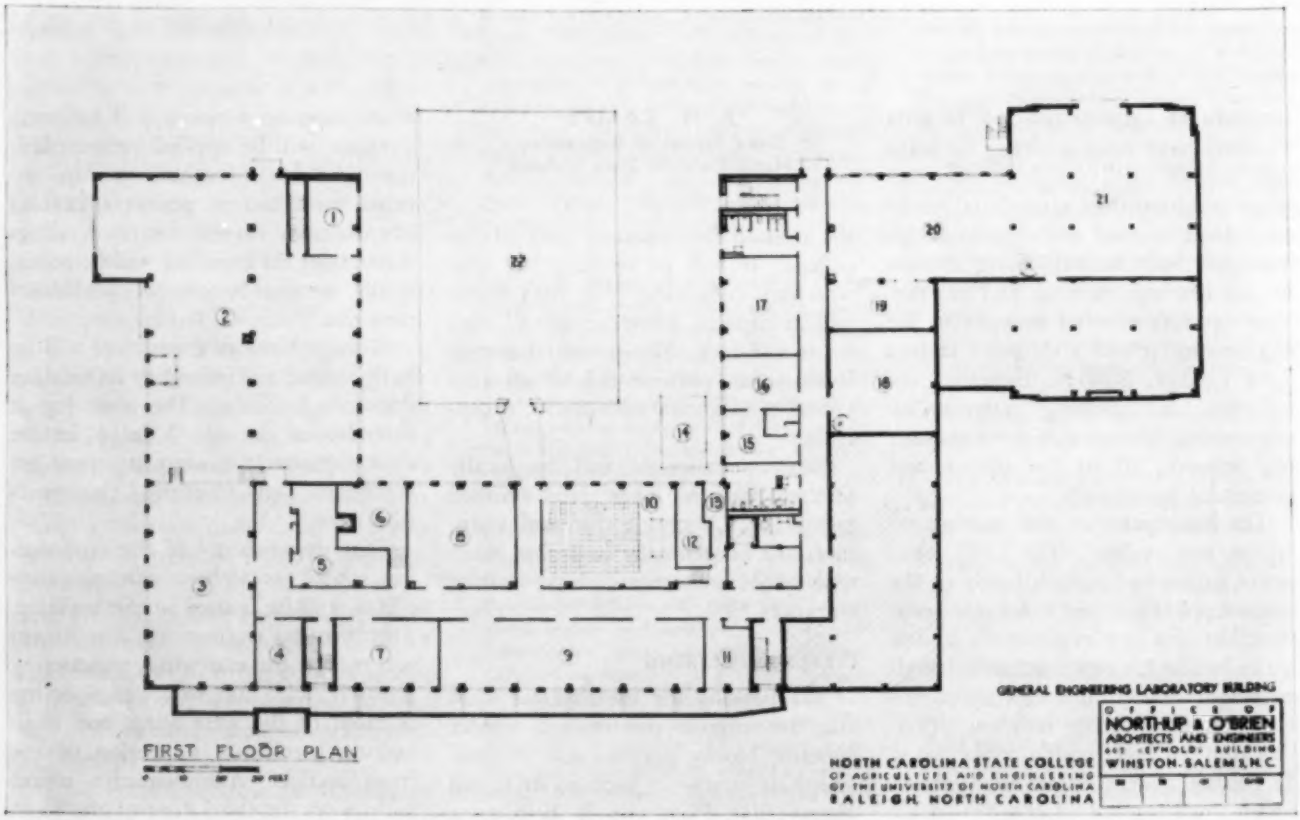
Four departments of the engineering school, as well as administrative offices, will be housed in the building. The chemical engineering department will occupy the east wing, engineering research and industrial engineering portions of the west wing, and engineering mechanics a portion of the front section. Administrative offices will be on the third floor of the front west section.

In the front section of the building there will be 15 classrooms with excellent blackboard space and modern fa-

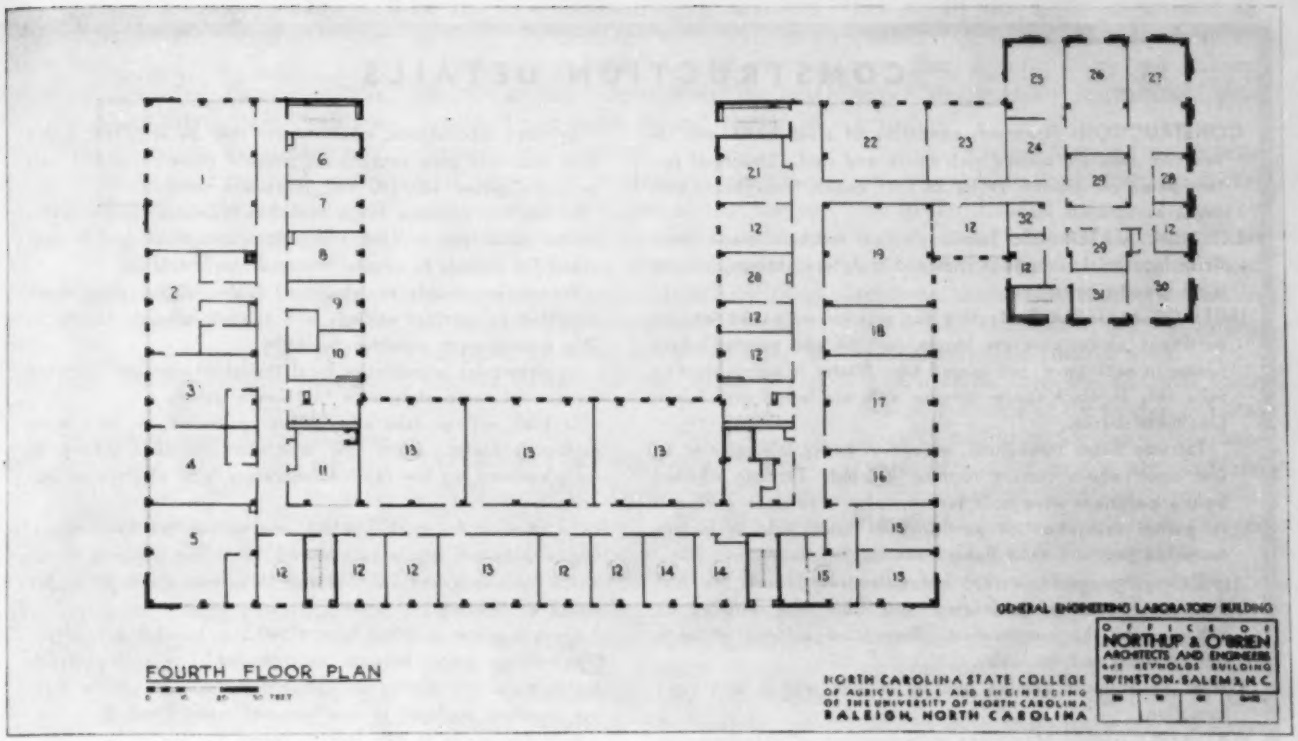
(*Continued on page* 31)



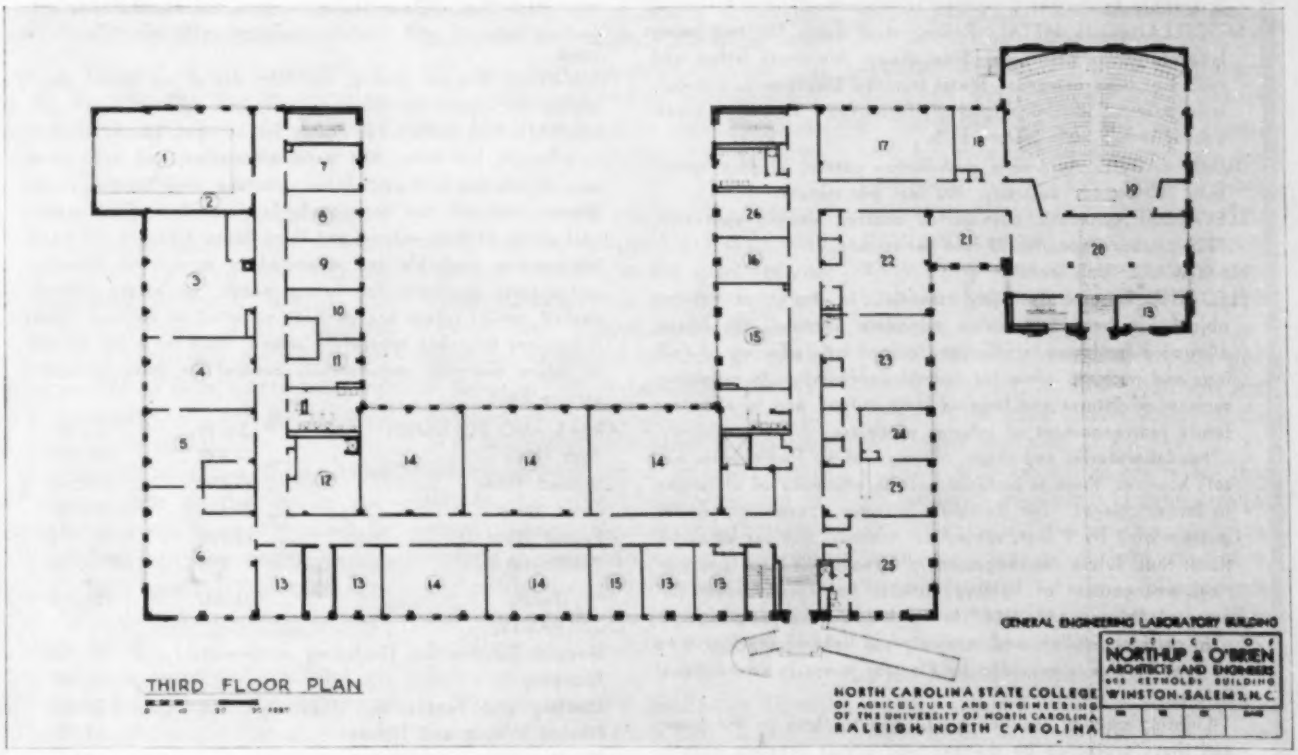
1. Unit Operations Tower
2. Balcony
3. Process Control Laboratory
4. Seminar
5. Chemical Engineering Department Offices
6. Water Treatment
7. Gas Analysis
8. Fuels Research
9. Balance Room
10. Calculation Room
11, 12. Apparatus, Office
13. Design Room
14. Classroom
15. Metallurgical Research
16. Structures Laboratory
17. Upper Part of Materials Testing Laboratory
18. Heating, Ventilating, Air Conditioning Laboratory
19. Cold Room
20. Refrigeration Laboratory
21. Upper Part of High Voltage Laboratory
22. Research Publications
23. Engineering Research Department Offices



1. Locker Room
2. Main Unit Operations Laboratory
3. Main Process Laboratory
4. Crushing & Grinding
5. Equipment Storage
6. Building Service
7. Student Machine Shop
8. Vibration Laboratory
9. Precision Machine Shop
10. Lecture Room
11. Office
12. Preparation Room
13. Main Electric Panel
14. Transformer Bank
15. X-Ray Analysis Laboratory
16. X-Ray Technologist
17. Combustion Laboratory
18. High Voltage Power Frequency Laboratory
19. Storage
20. Mechanical Laboratory
21. Materials Testing Laboratory
22. Ceramics Laboratories & Offices



1. Chemical Engineering Projects
2. Instrumental Analysis
3. Electro-Chemistry
4. Organic Technology
5. Distillation Research
6. Protective Coatings
7. Heat Transmission
8. Food Technology
9. Reactive Kinetics
10. Petroleum Technology
11. Chemical Supplies
12. Office
13. Classroom
14. Engineering Mechanics Department Offices
15. Industrial Engineering Department Offices
16. Seminar
17. Design Room
18. Motion Study
19. Time Study
20. Research
21. Plant Layout & Model Studies
22. Furniture Manufacturing Laboratory
23. Spectrographic Analysis
24. Electronics Shop
25. Communications Laboratory
26. Servomechanics Research
27. Electronic Research
28. Calibration Laboratory
31. Measurements Research
32. Access to Roof



1. Unit Operations Tower
2. Balcony
3. Plastics Laboratory
4. High Polymer Research
5. Air Conditioned Test Room
6. Paper & Pulp Laboratory
7. Synthetic Fiber Research
8. Plastics Research
9. Sample Preparation
10. Textile Finishing
11. Wood Technology
12. Supply Room
13. Office
14. Classroom
15. Physical Research
16. Optical & Photometric Research
17. Sanitary Engineering Research
18. Preparation Room
19. Lecture Room
20. Lobby
21. Student Interviews
22. Conference
23. Engineering School Clerical Staff
24. Director of Instruction
25. Dean of Engineering Offices
26. Director of Physical Research

CONSTRUCTION DETAILS

CONSTRUCTION: Fireproof, consisting of steel frame and reinforced concrete ribbed slab floors and roof. Structural system based on uniform 14 by 28 foot panels throughout, with minor exceptions.

EXTERIOR MATERIALS: Local selected machine made sand finish face brick; limestone trim and sculpture. Minnesota and local granite entrances.

INTERIOR MATERIALS: Backing for exterior walls and interior partitions, cinder concrete blocks, pointed and painted. Base course in each room, salt glazed tile. Plaster in administration suite only, in which spaces exterior walls are furred with 3 inch tile; metal bases.

Terrazzo floors throughout, except in heavy laboratories on first floor, where cement topping is used. Terrazzo applied before partitions were built for economy in terrazzo work and to permit relocation of partitions in future. Main lecture rooms on first and third floors have sloping floors.

Ceilings generally, except heavy laboratories on the first floor, are acoustical perforated cane fiber tiles, applied by adhesives to the construction. Suspended ceilings in large lecture room and its lobby.

ROOF: Twenty-year bonded built-up roofing with 2 inch rigid insulation.

WATERPROOFING: Membrane waterproofing at spandrels, under copings, and on exterior walls below grade. Concrete slabs on earth that had been dampproofed. Agricultural drain tile and rock fill at wall footings.

TOILETS: Tile floors and wainscots; marble stall partitions.

DOORS: Metal door bucks. Exterior and fire doors, metal. All metal doors equipped with hard rubber silencers. Interior doors, flush wood solid core construction.

WINDOWS: Steel architectural projected. Glass block in unit operations tower where washing is impractical.

MISCELLANEOUS METAL: Rolling steel doors for two heavy laboratories on first floor. Steel stairs. Aluminum letters and railing at main entrance. Metal trimmed blackboards and bulletin boards. Special hinged platforms for 7 foot high blackboards in two main lecture halls.

DUMB-WAITER: Automatic push-button control, electric operation, 250 pounds' capacity, 100 feet per minute.

ELEVATOR: Automatic push-button control, electric operation, 5000 pounds' capacity, 50 feet per minute.

HARDWARE: Unit locks.

ELECTRIC: Extreme flexibility essential. In design of lighting object has been to provide adequate lighting with liberal allowance for losses in efficiency caused by darkening of ceilings and walls, to allow for normal depreciation in reflecting surfaces of fixtures and lowered lamp output, and to allow for future rearrangement of interior partitions.

For laboratories and shops, minimum of 40 foot-candles was set; however, there is material gain in efficiency of utilization in larger spaces. For flexibility, fixtures spaced in regular pattern of 7 by 9 feet, subject to minimum number of variations; thus, future rearrangement of spaces will leave symmetrical arrangement of lighting outlets. For these spaces fluorescent fixtures and 4500° white lamps were specified.

In corridors, toilets and service areas lighting level of 5 to 10 foot-candles is provided by filament lamps in conventional fixtures.

Lighting circuits grouped on 12 panels, three to the floor; and these protected by thermal type circuit breakers both in mains and in branches.

Power circuits and plug receptacle circuits for appliances in laboratories supplied from distribution system separate from lighting and fed from 12 centers. These centers provide for fuse protection of individual circuits.

In some laboratories, where power may be required, heavy duty four-wire plug receptacles provide three-phase 208 volt or single phase 120/280 volt three-wire service.

In the two machine shops each has individual power distribution panel and in each a 4 inch square steel duct is provided for circuits to several motor driven machines.

For current supply to laboratory tables, similar steel ducts provided on corridor ceilings with conduit run-outs to tables. This arrangement provides flexibility.

In electronics laboratories local system of conduits provides for special radio circuits to the several rooms.

In high voltage laboratory power provided for sine wave motor generator. From this laboratory conduits extend to lecture rooms, to low tension laboratory, and electronics laboratories.

To provide for both lighting and power the three-phase, four-wire system has been adopted, providing 208 volt three-phase for power and 120/208 volt three-wire single phase for power or lighting.

Electric power supplied from a 500 kva. outdoor substation; high voltage supply brought underground. Low voltage feeders to main distribution switchboard in form of copper bus-bar structure enclosed in weatherproof metal housing.

Provision made in two lecture rooms for use of projection machines. Signal and loud-speaker circuits connect operator's position and lecturer's table.

System of program clocks and bells with provision for telephone circuits connecting with college switchboard.

HEATING AND VENTILATING: Steam provided from central power plant to machine room. Here it is reduced to proper pressure and distributed throughout building.

A two-pipe steam heating system provided with legless type radiation. Where radiators were not appropriate, projection type of unit heaters equipped with air diffusers is used.

PLUMBING: Copper piping, cast-iron drains, acidproof drain piping for laboratory sinks.

LABORATORIES SERVICES: Piping for air, gas, steam, condensate return, hot water, hot water circulation, and cold water extends vertically from central machine and control room. Branch lines are run horizontally in parallel exposed groups at ceilings of first, second and third floors. Lines to individual laboratories available and extended to equipment installed; connections available for future needs. To assure uninterrupted service, main branch lines valuated at vertical risers; laboratory branches separately valved. Wire ways for present or future electrical requirements parallel the main horizontal service lines.

AREAS AND VOLUMES:	Sq. Ft.	Cu. Ft.
First Floor	24,220	430,770
Second Floor	23,700	310,210
Third Floor	27,130	369,750
Fourth Floor	27,700	362,410
Penthouses	250	3,060
Totals	103,000	1,476,200

CONTRACTS:	
General Construction (including dumb-waiter)	$ 942,400
Plumbing	125,872
Heating and Ventilation	84,450
Electric Wiring and Fixtures	79,194
Elevator	8,685
Total	$1,240,601

UNIT PRICE (exclusive of architect's fees): $0.84 per cubic foot.

ARCHITECTS AND ENGINEERS: Office of Northup & O'Brien, Winston-Salem, N.C.

(*Continued from page* 27)
cilities in the way of visual aids and demonstration facilities.

From an operating standpoint, the new engineering laboratories building is to house operating departments of the school of engineering and at the same time it will provide functional services for all departments of the engineering school. For example, the building will house chemical engineering, providing undergraduate, graduate and research facilities in the way of classrooms, research rooms, seminar facilities, and modern laboratories.

The industrial engineering department will have ample and modern teaching facilities and at the same time will have personnel, laboratories and equipment for research and graduate activity. Research facilities will be patterned for, and of special interest to, the industries of North Carolina. Engineering mechanics will have office facilities and will make use of the classrooms to carry out its teaching program in both the undergraduate and graduate levels.

The engineering research department, which will be totally functional in operation, will have facilities that will be of aid to every department in the school of engineering and to every industry in North Carolina.

MASTER MECHANIC IN CHARGE

As an example of the functional or over-all activity for the engineering school, there will be two machine shops in the front basement of the new building. The larger shop will be equipped with modern machine tools for construction, maintenance and repair of laboratory equipment and for the fabrication of special instruments and devices needed in experimental work. This shop will be under the supervision of an experienced full-time master mechanic and will not be used for student instruction.

The smaller machine shop, under the general care of the master mechanic, will be equipped with machine tools and bench tools to enable seniors and graduate students to carry out work required by their laboratories and theses problems.

In order to meet the teaching requirements for both undergraduate and graduate programs and also to provide facilities and experimental equipment to render service to the growing chemical industry in North Carolina, the chemical engineering department has been provided sufficient space and modern facilities in the eastern section of the new engineering laboratories building. Laboratories were developed to follow the fields of need of the North Carolina industries and the fundamental and basic subject matter in chemical engineering.

A large unit operations laboratory was developed with one section having a clearance of 45 feet for distillation columns and other chemical engineering equipment providing a large overall height. This tower has convenient balconies at three levels in order to provide access to the experimental equipment.

EXPERIMENTAL FACILITIES

The next basic facility provided was a process and control laboratory along with adjacent balance and calculating rooms. In this section of the building also will be found facilities for instructional and experimental work in paper, pulp and wood, plastics, synthetic fibers, wood technology, and textile finishing. Facilities also will be provided to handle experimental and instructional work in the field of varnishes, finishes and protective coatings.

In all of these laboratories, facilities are to be installed in the way of chemical hoods, systems to draw off fumes of chemical reactions, special piping, and sinks. In addition, services have been made available in all the laboratories to provide electrical services, gas, high pressure air, hot and cold water, and steam. Special attention has been given to space for darkrooms and for apparatus and instrument storage.

Our industrial engineering department will be equipped not only with teaching facilities in the graduate and undergraduate levels but also with up-to-date and modern laboratories to carry out its instructional program and at the same time to be active in experimental endeavor.

A laboratory for plant layout and processing will be a feature. There will be two other laboratories, one devoted to motion study and the other to time study and industrial processing and production. Another will have special equipment to experiment with problems and designs peculiar to the furniture industry.

The engineering mechanics department will have offices and classrooms that will provide for both undergraduate and graduate instruction.

Engineering research is a vital part of our educational program. The executive program of the department is correlated with the interest and activities of all the fields of interest in engineering, and it has a contributing part that it must carry out in our senior and graduate instructional program.

Laboratory facilities and equipment will be available in electrical engineering in the form of a power frequency high voltage laboratory, transmission line research, and in electronics and servomechanism. Equipment and facilities will be available in high frequency transmission and control work.

Modern facilities and adequate space will be provided in the field of physical research and in optics and sound. Laboratories and apparatus are provided in metallurgical work, particularly in the field of new metals with longer operating life at high temperatures.

In addition, the engineering research department will be provided with laboratories for materials testing and sanitary engineering. The space provided for this equipment will have 25 foot clearances in order to handle the larger sized testing machine.

SERVE ENTIRE COLLEGE

Three of the laboratories will be constructed and equipped to serve the entire college. Many of our experimental and research activities today require special equipment. Such equipment is expensive and cannot be justified by a single teaching or research department but can be substantiated from the standpoint of the activities of the entire college. That equipment will be provided in the research department. We will have properly built laboratories with such things as electrical services and shielding to house x-ray equipment, an electronic microscope, and apparatus for spectrograph analysis.

Two modern lecture rooms are provided: one on the first floor will seat 150, and the main lecture room on the third floor will seat 275.

Seats will be on a ramp so that all students may view clearly demonstrations. Each room will be equipped with facilities to darken the room, large built-in sliding blackboards, power receptacles, and service outlets for projection equipment and, in addition, it will be provided with force ventilation. An attractive lobby, which leads to the large lecture room on the third floor, will provide excellent space for engineering and industrial displays, which should prove of encouragement to our students.

It is hoped that the building will be ready for operational use in September.

Planning for maintenance in NEW CONSTRUCTION

NORMAN W. MARBLE
Director of Physical Plant
University of Texas, Medical Branch
Galveston, Tex.

MANY ITEMS CAN BE INCLUDED IN the plans for new buildings that will provide for easy and economical maintenance after the building has been completed. However, architects and engineers who never have had actual experience as physical plant administrators or custodians have no idea of the many conveniences needed so that often they do not specify particular items.

These features would not add an appreciable amount to the original cost of the building, but it takes a great deal of money out of the maintenance budget to alter completed buildings so that we can make repairs more easily.

If architects and engineers would include these items in the original construction, maintenance costs would be much less. Physical plant administrators usually have insufficient funds to do all that should be done and such a program would help a great deal by eliminating alterations to newly installed systems. That cost could be applied to maintenance.

Space Assignment. It is, of course, assumed that departments that are to be housed in the new structure have had a chance to suggest what they would like in the way of general layout and mechanical facilities. However, I am afraid that they do not always get exactly what they would like to have, for we often are called in to "add to" and to change newly planned areas. This takes funds provided for maintenance in many instances.

Storage Facilities. A large storage building on the campus will help solve this problem but at many institutions there is none. Each department should have a storage room in the building where the department is housed and the physical plant needs a general storage room in each building even if there is a general storage building on the campus. The departments do not need all their equipment every semester, but they do need the space it takes up for other equipment. It will save hauling if it can be kept in their own building and it will avoid possibility of losing it if it gets to a general storage facility.

Piping. Exposed piping is ugly. On the other hand, it is sometimes buried so thoroughly that sections of the walls or ceilings have to be removed and replaced at great expense so that a minor repair job can be taken care of. It would be nice to be able occasionally to find a flange union when repairs or alterations have to be made.

Branch shut-offs never occur often enough, and sometimes a whole building or a large portion of it may have to be shut off so that a minor repair can be made. When it is zero weather and a heating repair must be made, this inconvenience becomes serious. We have to put in branch shut-offs sooner or later. Why not install them when the building is constructed?

The general contractors should be sure to make pipe chases big enough for the original installation of piping.

Light Switches. Many of those in charge of maintenance have had to change switches so that too many unnecessary lights will not have to burn when only a few are needed. It would be well to have the switches separately arranged for late afternoon or storm lighting from those needed for complete night lighting.

Lighting Fixtures. Replacement of glass for fancy ornamental fixtures, not carried in stock, is always a real problem. Standardization of fixtures is a good point to check in the plans and specifications for new buildings. Certain fixtures in foyers and lobbies will always be special, but fixtures in the corridors, laboratories and classrooms can be the same.

Key System. Many custodians have had to change locks in relatively new buildings because they were different from the locks in other buildings on the site. As a result of departmental requirements, various locks also have had to be changed. The president, vice president, business manager, and so forth like to have only two or three keys, at the most, which will allow them to get into any building on the campus. Sometimes six or seven keys have been needed for the doors in one new building.

Telephone Switchboards. Many switchboards have had to be relocated so that operators could have peace and quiet as well as fresh air. I know of cases in which switchboards were so placed that the operators were obliged to perform such additional duties as giving information, making taxi reservations, and making change for patrons of near-by soft drink machines.

Accessible space for anticipated additional operators is not always provided for. If an institution has not already obtained its inside dial system, the problem of where to locate the frame room may be a real one. There should be some room for expansion in a new building.

Service Sinks. Do cleaning women have to travel too far to rinse out mops and to get fresh water? Service sinks should be located in centers of areas assigned to cleaners. The cleaning women also need a storage closet for supplies and a suitable place to change their clothes.

Utilities. Hooking on to facilities from an old building is sometimes a drain on that building, and no allowance for expansion of these facilities is made in the new building. Sewer, water, steam, electricity, gas and other utilities should be extended in the streets so that proper sized or, better still, oversized facilities can be run into the new building with plugged ends on mains for future extensions if later buildings are contemplated on the same site.

In many cases the pipe sizes are reduced to such an extent that a complete new system from the source of supply may become necessary at great expense. A campus should be planned as a real estate development is, with the streets, sidewalks and utilities put in first. Then adding new buildings will present no problem.

New Materials. Many of the new materials on the market will reduce maintenance costs. Repairs and re-

painting can be cut down a great deal if the proper type of floor for each use is selected and if, at least in the corridors, a wainscot that requires no maintenance is installed.

Construction Features. Door bucks should be heavy enough to hold the No. D door closers that the architect may have forgotten to specify and that the maintenance staff may have to install later. Be sure not to get veneered outside doors as these are impossible to repair when they start breaking up. Also be sure to get flashings where they are necessary—and plenty of them. You want to enjoy the first rainstorm after the building is completed.

Landscaping and shrubbery around the new building should be included in the plans so that the maintenance department will not have another job to do without special funds.

Fire Protection. This item should be carefully considered by the physical plant administrator when he goes over the plans for a new building. How combustible are the structure and its interior finishes? What are the provisions for the limitation of fire spread from any point of origin within the building? What provisions have been made for the discovery of fires as soon as they begin?

What provision has been made for immediate notification of fire fighting forces, such as signal stations? What provision has been made for the prompt extinguishing of incipient fires? Sprinkler systems or extinguishers should be included in the original construction costs. The proper number of fire exits should be included in the building plans.

General Items. If acoustical treatment is needed in certain areas, it should be put in when the building is constructed.

Many of us do not like parapet walls because of leaks.

If it is to be a stone veneer building, construction details should be checked. It will be too late to try to stop leaks after the building is completed if the original construction is faulty.

Maintenance departments have to pay the installation costs of many of the features discussed in this article. However, they are not maintenance items and should be considered and installed when buildings are constructed. Physical plant directors should be given the opportunity of studying the plans and specifications of a new building before they are approved, and the architects and engineers should incorporate his suggestions.

SERVICE CENTER *for maintenance and supply*

A SERVICE CENTER LARGE ENOUGH in size to care for many of the needs of a small town of 5000 or 6000 population has solved many maintenance and supply problems of North Texas State College.

Located on a 5 acre plot three blocks from the main campus, the $80,000 center is composed of six frame buildings, including a commissary, garage, carpenters' shop, lumber shed, a plumber-electrician-painting building, and a quonset warehouse.

Under the service center setup, the college transportation, delivery service, and maintenance departments are centralized to provide swift distribution of necessities to any part of the campus in a minimum of time. Freight deliveries are made to the service center for storage, and supplies are requisitioned by the college departments when needed.

The service center has re-shuffled requests for service into smooth-flowing channels; this allows the necessary work to be completed in the shortest time possible. Within a recent 20 day period the center handled 450 work jobs requested by various departments. Requests for repairs, left in a box in the business office by faculty and staff members, are picked up each day by the service department and classified in importance. Emergency jobs are taken care of at once, and the others as soon as possible.—ROBERT J. MCCLOUD, *North Texas State College, Denton.*

FRESH FACTS ABOUT FROZEN FOODS

COL. PAUL P. LOGAN
Director of Food and Equipment Research
National Restaurant Association

PRESERVATION OF FOODS BY COOL OR cold storage is as old as the history of mankind. Preservation by freezing, although practiced for generations by people in the Arctic regions, is quite new in other parts of the world. As a matter of fact, from a technological standpoint, the freezing industry is an infant. Scientific theories of 1940, for example, concerning the absolute necessity of quick freezing to prevent the formation of large and destructive ice crystals are today being modified for many products by the results of research in slower freezing methods.

BASIC RESEARCH NEEDED

More information is needed about the freezing qualities of raw material. Much basic research is still needed to determine why one breed or strain of fruit or vegetable freezes better than another of the same variety. More information is needed on the maintenance of proper relative humidity at temperatures in the frozen zone. Some preliminary work in very low temperature freezing indicates that a whole new field may ultimately develop in the preservation of food by temperatures ranging from 100 to 150° F. below zero.

Research and technological developments in other forms of food preservation also are "on the march." Preservation by heat in hermetically sealed containers (canning) is beginning to take on a "new look" with the heat-fill-seal method. A new development in cremogenizing corn undoubtedly will make obsolete the old method of canning cream style corn. A faint light glimmers in the distance on the possibility of canning fresh whole milk, which, if and when accomplished, will revolutionize the entire dairy industry.

Chemical preservation of food moves forward. Anti-oxidents developed in the last five years have taken lard and other shortening out of the refrigerator and put it on the grocery shelf as a nonperishable item.

Physicists have demonstrated the possibility of sterilizing and preserving food by electronic bombardment, with one to three million volts of electricity.

Dehydration, the very oldest form of food preservation, received great impetus during the war. Although not extensively used today for vegetables, other than potatoes and onions, it is a mammoth industry for the preservation of whole milk, milk solids other than fats, eggs, ice cream mixes, gelatin dessert powders, chili peppers, and many dried mixes.

As these technological advances improve the preservation of food, it is important that evaluation be made to determine which type provides the best and most suitable service for the conditions under which the products are to be used.

There are several methods of freezing that today are recognized as the most practical for commercial use. Freezing in still air at zero or below is still used to considerable extent for some products. Blast freezing, more often used, is the use of strong air currents passed directly over products in rooms or tunnels with temperatures ranging from —10° to —40°.

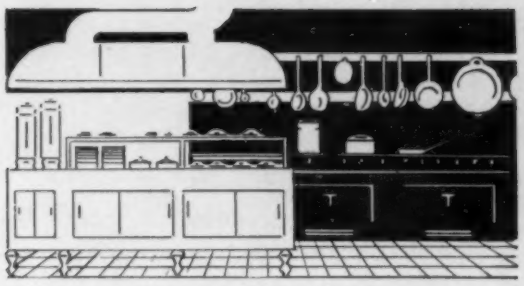
Direct contact freezing is the immersion in either brine or sirup or the spraying of these mediums onto the food at subzero temperatures. Some of the more recent developments in freezing have been in this type of operation. These include the polyphase freezer, in which berries and other tender products are dropped into a circulating stream of near zero temperature heavy sirup, the water content of the sirup being in the form of fine ice crystals. Each berry becomes encased in a thin film of the sugar solution and is frozen solid in from four to nine minutes. The individual pieces of fruit can be defrosted in a fraction of the time which would be required for solid blocks of fruit which have been frozen in the conventional method. Another immersion type of freezer has been built into a continuous process. The machine is similar to the equipment used by the canning industry for continuous pressure cooking. The freezer is a large horizontal cylinder enclosing a spiral or corkscrew conveyor. Cans of food to be frozen travel through the freezer submerged in brine cooled alcohol at 25° below zero. One hundred cans per minute enter and leave the freezer. The capacity is 4500 cans and the freezing is completed in 45 minutes. Peaches, apricots, figs, melon balls, fruit salad, asparagus, broccoli, cauliflower, lima beans, and peas are being frozen by this method.

The indirect contact method is extensively used in the single and double plate freezers invented by a frozen food packer. This system has been extensively used for packaged foods, in which the products were frozen into a solid block.

Last year this same man perfected a plate system for the freezing of loose products, which he calls the "gravity" froster. In this machine the peas, berries or other products are poured directly onto the cold plate and are slowly moved across the plate by a sharp edged blade. At the end of the first plate they spill down onto the second plate, and the freezing is continued. By the time they have passed over the fifth plate they are frozen solid and the operation has taken less than 15 minutes.

TRIES VERY LOW TEMPERATURES

For the last five years one laboratory has been conducting extensive experiments in very low temperature freezing and storage. The foods are frozen at 150° below zero in large sized metal containers, which resemble a standard 300 pound ice pan. These pans are called "diffusers" and when packed solidly in a standard refrigerated car tend to maintain temperature equilibrium throughout the entire mass. A normally insulated refrigerated car



packed with 150° below zero food in diffusers, and sealed, was found to retain an internal temperature below —50° after 90 days, during which time a continuous 100° air had been circulated around the car on all sides. This demonstrated that by this system frozen products could be shipped around the world or across the desert for a period of at least 90 days without added refrigeration.

Packaging has received a great deal of attention during the last three years, but there still remains a lot to be done in standardization of sizes. The basic package is generally cardboard, elaminated cartons, fiber or metal cans, with overwraps of cellophane, waxed paper, foil, films, glassine or other similar material. The institutional sized packages are usually 2½ and 5 pounds for vegetables while 10 and 30 pound packages are used for fruits.

Packages that do not afford a moisture-vapor proof barrier permit oxidative processes and the loss of surface moisture; the result is deterioration in the flavor, color and texture of the product. This condition easily can be detected by the presence of dark, dry areas on the surface, commonly known as "freezer burn."

The convenience of frozen foods, as well as their quality, has added to their popularity. It is safe to state that the frozen food industry will increase its volume in ratio with the availability of zero storage facilities and the improvement of its raw material and packaging. The growth of the industry last year was rather amazing, but an important part of the increase was due to frozen orange juice concentrate.

In popularity the best selling vegetable is green peas, which is followed by lima beans, green string beans, Fordhook lima beans, spinach, broccoli and corn, in the order named.

Of the fruits packed last year, strawberries led with 160,000,000 pounds; cherries were second with 87,000,000; apples, third with 27,000,000; raspberries, fourth with 23,000,000, and peaches, with 13,000,000. Apricots and other berries had a lower volume. More than half of the strawberries were packed either in barrels or in 30 pound cans; virtually all of the cherries were in such containers; more than half of the apples and peaches and two-thirds of the raspberries were so packed. This is indicative of the extensive use made of this material by manufacturers and institutions.

The estimated 1949 pack of frozen foods is 1,800,000,000 pounds. It is doubtful whether any other food item has ever had the same spectacular increase in volume that frozen orange concentrate has had during the last two years. In 1950 one-fourth of the Florida crop is expected to go into frozen concentrates.

STANDARDS OF QUALITY

Government standards of quality have been established for many frozen products, including eight important vegetables, six of the more important fruits, poultry, fish and meat.

These standards enumerate the factors of quality that establish the grade of a product and indicate the grading system. For example, the factors that together determine the quality of green peas are (1) flavor; (2) odor; (3) color; (4) absence of defects, and (5) tenderness and maturity.

The first two, flavor and odor, determine whether the product can be further graded and classified. All peas must have a *normal* flavor and odor when cooked and must be entirely free from any off flavors or odors. The first step, therefore, in grading peas is to cook a sample and make the flavor and odor test. If the product is found acceptable the sample may then be further examined for color, which carries a grading value of 20 points; for absence of defects, which rates 40 points, and for tenderness and maturity, which also rates 40 points.

Each factor is fully defined in the U.S. Standards and even an inexperienced grader can, by following the definitions, make a reasonably accurate determination of the point value. A score of 90 is required for fancy; 80 for extra standard, and 70 for standard grades. Failure to score 70 means that the product is substandard, regardless of its flavor and odor.

In addition to grading for quality, a careful and thorough inspection should be made of the condition of the shipment at the time of delivery. Poor or damaged packages, evidence of defrosting and refreezing, or excessive freezer burn are causes for rejection.

FISH NOT YET UNIFORM

Frozen fish is probably more uniform in quality than fresh fish, but a substantial part of the frozen fish found on the market is not of high quality. Because of the methods of handling fish at sea, only about 15 per cent of the deep sea fish landed at our important fishing ports can be classified as really fresh. The rest is from four to 10 days old and the fact that it has been preserved in ice has not prevented deterioration. The subsequent filleting of these stale fish does not in any way improve their poor quality. Enzymatic action, which proceeds in ice-cooked fish, causes decomposition and the denaturing of protein. Such fish become dry because the tissue juices are lost.

There is a trend toward mechanical refrigeration on fishing vessels that will enable proper handling. But in the meantime it is well to purchase "shore caught" or "guinney boat" fish. This means that the fish were landed within a few hours after being taken from the water.

Frozen poultry, especially in eviscerated and cut-up form, is steadily increasing in volume. It will undoubtedly become the standard method of merchandising within the next few years. Several important restaurant chains are now purchasing, frying and broiling chicken in the form of portions cut up and ready for cooking. Standards of quality for drawn and cut-up poultry are now in the process of being drafted.

For many years, both carcasses and wholesale market cuts of meat have been frozen by the packing industry. Fabricated and frozen retail cuts were tried in the early Thirties but did not make much headway at that time. Within the last two years several large

packers and institutional distributors have reopened the market for fabricated cuts for the institutional trade. This will grow, and it is predictable that in the course of a few years the bulk of all steaks, chops, cutlets and specialty meats will be in fabricated frozen form.

This practice will enable the purchase of specific items, such as center cut pork chops and minute steaks, which have been cut on a specified weight basis, and their use will permit the restaurant operator to inventory such material on the basis of portions upon which exact food costs can be calculated.

Frozen bakery goods flooded the market at the end of the war and for a year were quite popular. That period was followed by a marked decrease in demand and a corresponding reduction in production. These foods, along with certain other specialties, are now staging a comeback. Unbaked pies, as well as biscuits, muffins and other products leavened with baking powder, are increasing in sales volume. This type of material lends itself well to production by restaurant operators who have freezing facilities and who do their own baking.

FREEZING OWN BAKERY GOODS

The measurable advantages to institutions through their own production of frozen bakery items are:

1. The improvement of quality and the maintenance of uniform high quality by standardized formulas and greater production volume of fewer items per day.
2. The continuous availability of a wide variety of items, either baked or ready for the oven, and the stocking of such items without fear of loss or deterioration.
3. A substantial increase in per-man-hour production in the bakery.
4. A reduction of the hazard of overproduction with its attendant loss from left-over stale products.

In 1946 an amazing variety of precooked frozen foods came onto the market. Just about every conceivable type of meat and vegetable dish, as well as soups and desserts, were found in the retail stores in frozen form. These foods passed through the same cycle as did the frozen bakery products. Either because of high price or low quality most of them disappeared from the market.

These precooked foods are again on the increase and include many excellent items, such as chicken à la king, Chinese foods, French fried potatoes, and even complete meals, which include meat and vegetables.

These cooked and frozen meals were used to some extent by the armed forces just prior to the close of World War II. Frozen French fried potatoes seem to be increasing in popularity. One producer in the state of Maine is now turning out 50,000 pounds of frozen French fried potatoes per day in consumer sized packages.

Most causes of spoilage can be stopped at 15° F., but chemical reactions proceed at lower temperatures. While a number of products can be stored satisfactorily at temperatures up to 15° above zero, it is a good general rule that holding storage should be zero. It always must be remembered that freezing does not destroy but only arrests the activities of microbes and enzymes. It does not completely protect products from vitamin loss. The loss of nutritive value increases in proportion to the increase of temperature.

Vitamin A in fruits and vegetables will drop significantly in six months' storage at 15° F. Even at zero as much as 25 per cent may be lost in peas held over from one season to the next. Vitamin C in spinach, for example, will remain unimpaired for eight months at zero but will be 25 per cent reduced in one month at 16° F. Beef can be held 15 months at zero but will show lowered quality in three months at 15° F.

Many other similar tests and examples have proved that zero storage is the temperature desirable for the safekeeping of frozen foods. It must also be emphasized that when storage temperatures are too high other desirable qualities are lost, such as the bright green color in peas.

THAWING AND REFREEZING

Many frozen food packages properly carry an important admonition against the thawing and refreezing of foods. This is particularly important because of bacterial action. A few examples will serve to illustrate this activity. Scalded frozen peas and beans may have a bacterial count below 1000 when frozen. After 24 hours at 72° (thawed) the count rises to between 24,000,000 and 40,000,000. Sweet corn will go from a bacterial count of 1500 in the frozen state to 60,000,000 in 24 hours after thawing. Oysters, having a 22,000 count at zero, have been known to go to 320,000,000 count at 72° in 24 hours. This further emphasizes that zero storage is essential and that it is highly important that there be no compromising with this temperature.

COOKING FROZEN FOODS

Numerous tests have shown that there is little effect upon the quality and flavor of products caused by the speed or method of defrosting. Of course, very slow defrosting permits optimum temperature for bacterial growth.

Many products can be successfully cooked by the application of heat to the frozen product without defrosting. A few vegetables, such as broccoli, asparagus and spinach, are better when partially thawed prior to cooking. Corn on the cob is much better when completely defrosted before cooking.

In general, frozen meats may be cooked by any of the methods used for fresh meats of the same quality. Thawing or not thawing is principally a matter of convenience. A longer cooking time must be allowed for unthawed meats. Low temperature cooking is imperative for frozen meats because the outside will become burned at high temperatures before the inside has even defrosted.

CONCLUSION

It is my conviction that frozen foods afford a source of supply for public feeding establishments that cannot be overlooked from now on. Every public feeding establishment should therefore obtain the necessary zero storage for the handling of this material. Every purchasing agent should be able to grade various frozen products with reasonable accuracy. There is no substitute for quality. Inferior products are being produced and sold. When such products find their way onto your tables they are sure to produce inferior results. All who are concerned with kitchen and bakery work must be taught how to store, defrost and prepare frozen foods.

As our own education increases and more adequate facilities for storage and handling become available, so will the technic and quality of the work of producers and distributors improve. If the whole work together as a team there is no limit to where America can go in improving its dietary standards through the proper employment of frozen foods.

FIRE EXTINGUISHERS

their selection, maintenance and use

WILLIS G. LABES
Assistant Professor
Fire Protection Engineering
Illinois Institute of Technology

ONE IMPORTANT PART OF FIRE PROtection is the installation, maintenance and, when necessary, the use of the proper type of portable, manually operated fire extinguisher.

The purpose of this article is to acquaint the reader with the fact that small fires can be classified into a number of types, that there are at least eight recognized types of fire extinguishers, and that all types of extinguishers are not suitable to combat all types of fires; helpful comments concerning the installation, maintenance and use of the various types of portable fire extinguishers also will be made.

The Handbook of Fire Protection, published by the National Fire Protection Association, classifies incipient fires as follows:

Class A Fires. Fires in ordinary combustible materials where the quenching and cooling effects of quantities of water or of solutions containing large percentages of water are of first importance.

Class B Fires. Fires in flammable liquids, greases and the like where a blanketing effect is essential.

Class C Fires. Fires in electrical equipment where the use of a "nonconducting" extinguishing agent is of first importance.

TYPES OF EXTINGUISHERS

The types of fire extinguishers being discussed are appliances having a limited supply of the fire extinguishing agent. They are readily portable, either as a result of relatively small weight and bulk or, in the case of larger equipment, by the provision of wheels that allow the apparatus to be moved by one or two persons.

The term "first aid" is applied to this equipment because its limited capacity permits its successful use only on fires in the first stages. Effective use, therefore, depends upon prompt discovery of the fire before it has spread to a size beyond the capacity of the extinguishing units available, together with the proper application of the extinguishing agent.

Underwriters' Laboratories, Inc. has established a classification of extinguishers in terms of "units of first-aid fire protection." The relative extinguishing capacity of a fire extinguisher is determined by its ability to extinguish certain carefully standardized fires. All Underwriters' Laboratories' approved and labeled first-aid fire extinguishers are classified as suitable for one or more classes of fires, as well as in terms of units of first-aid fire protection.

A class A-1 extinguisher, therefore, is approved for use on class A fires and is considered as one unit of first-aid fire protection. A class A-2 extinguisher is approved for use on class A fires but requires *two* appliances of the particular capacity and type to form *one* unit.

Fig. 1. Water Pump Tank. Water is discharged on both the up and down strokes.

The Factory Mutual Laboratories applies ratings for fire extinguishing effectiveness only to those hand and wheeled extinguishers that, in its judgment, are suitable for use on flammable liquid fires. Its method of rating is based on finding the largest area of a flammable liquid (alcohol or gasoline) fire that can be extinguished by an expert operator under closely controlled conditions. The ratings obtained by this method are then listed in terms of one-half the area in square feet of burning liquid actually extinguished by expert operators. This safety factor is applied so that protection will be furnished on the basis of inexperienced operators using the extinguishers.

The required number of units of first-aid fire protection should be determined by a competent authority, such as the fire insurance rating and inspection organization having jurisdiction.

The foregoing information should be kept clearly in mind, but it is equally important for those responsible for the safety of others to be acquainted with the various types of approved extinguishers available for selection and installation. The following paragraphs will be devoted to a discussion of eight recognized types of fire extinguishers.

WATER PUMP TANKS

A typical water pump extinguisher (Fig. 1) consists of a metal tank, containing tap water, combined with a built-in manually operated pump, discharge hose, and nozzle. The pump is so designed that water is discharged on both the up and down strokes, with a range of from 30 to 40 feet.

Two sizes of tanks are available, 2½ gallons and 5 gallons, with an over-all charged weight of 40 to 65 pounds,

respectively. The time of discharge, as well as the range, will depend upon the operator but will average about one minute for the 2½ gallon size and two minutes for the 5 gallon size. The extinguisher is suitable for use on class A fires only and is given an A-1 classification for both sizes.

This type of extinguisher must be used within heated areas during cold weather months, unless the water has been treated with calcium chloride charges, including corrosion inhibitors, purchased from the manufacturer of the unit to prevent freezing and damage. Common salt or chemicals other than those furnished by the manufacturer should not be used, as they may cause corrosion and render the extinguisher inoperative.

Maintenance of this type of extinguisher is comparatively simple. It is filled with water (if necessary, properly treated against freezing) after use. Periodic examination should include examination of water level and testing of the pump by several strokes of the shaft, discharging the liquid back into the tank. The condition of operating parts should be examined at least once yearly and a drop of light lubricating oil put on the piston rod packing; also, nozzles should be examined to ensure that they are not obstructed.

When antifreeze solutions are used, greater care is necessary to ensure proper condition. In recharging, all parts should be washed thoroughly with water and plain water flushed through the hose and nozzle. All water must then be drained from the hose and nozzle to prevent freezing and clogging.

GAS-CARTRIDGE WATER FILLED TYPE

This is another kind of unit employing plain water (which may be treated to prevent freezing in unheated areas) as an extinguishing agent. It is available only in the 2½ gallon size weighing about 35 pounds fully charged. It consists of a metal container, outlet elbow, hose and nozzle; a metal cap screws into place against a rubber gasket to cover the recharging opening in the top of the container. The container and cap are hydrostatically tested by the manufacturer at 350 pounds' pressure per square inch. A ring handle is formed as part of the cap.

Inside the container, just below the cap, is located a metal cartridge in which is stored carbon dioxide gas under high pressure; an arrangement is made for the operator to puncture a disk in the cartridge by inverting the extinguisher and bumping it gently on the floor, thus releasing the gas to provide pressure for expelling the water. For proper performance the extinguisher must remain inverted during operation.

This unit is capable of discharging a stream of water a distance of 30 to 40 feet for about 50 to 60 seconds. An A-1 classification has been assigned to this type.

Maintenance of this extinguisher is relatively simple. Aside from periodic inspection to ensure that the extinguisher is in place and apparently in operating order, once each year it is advisable for someone to inspect it thoroughly for mechanical injury, for proper water level, for defects in the rubber gasket in the cap, for clogging and damage to the hose, and for accurate weighing of the carbon-dioxide cartridge to make sure it is fully charged. The total weight of the fully charged cartridge is stamped somewhere on its outer surface. If the cartridge has lost ½ ounce or more in weight, it should be replaced with a new cartridge.

After an extinguisher has been operated, one merely needs to fill it with plain water *to the filling mark*, insert a new cartridge in the cage under the cap, screw on the cap hand tight, with the rubber gasket in place, and return it to service. Charging with water above the filling mark is dangerous and may cause bursting of the container when operated, since the necessary volume of gas expansion above the liquid is reduced.

Do not throw away the used cartridge, since it is likely that it has some exchange value for the purchase of a new cartridge if returned to the manufacturer in good condition. If this type of extinguisher is used with an antifreeze solution instead of plain water, additional precautions must be taken on both yearly inspection and recharge after operation.

SODA AND ACID TYPE

The outward appearance of this type of extinguisher in 2½ gallon capacity is similar to the gas-cartridge type of water filled extinguisher. The essential difference is that carbon dioxide gas pressure for discharge of contents is generated by a chemical reaction between sodium bicarbonate and sulfuric acid. This unit, in the hand portable sizes, is available in capacities of 1¼, 1½ and 2½ gallons of extinguishing solution, weighing about 20, 25 and 35 pounds, respectively; the 2½ gallon size is commonest. For the 2½ gallon size, a charge consists of 1½ pounds of sodium bicarbonate dissolved in 2½ gallons of water, which constitutes the extinguishing medium; and 4 ounces of 66 Baume's (specific gravity 1.83 to 1.84) sulfuric acid, contained in a glass bottle supported in a metal cage under the cap. The glass bottle is closed by means of a lead or ceramic stopple that fits loosely so that it will readily drop down when the extinguisher is inverted.

Heat-resistant bottles are preferred since the heat generated by the chemical reaction is likely to crack a bottle of ordinary glass. Bottles are specially made in size and shape for this type of extinguisher, and a filling mark is cast into the surface of the glass. Inverting the extinguisher permits the acid and sodium bicarbonate solution to mix; the extinguisher must *remain inverted* during operation for proper performance.

Since considerable pressure is developed within the extinguisher because of chemical reaction, it is required that each container be hydrostatically tested at the factory at 350 pounds' pressure per square inch. The container must withstand this pressure without leakage or distortion. It is important that the extinguisher not be overcharged with excess quantities of water solution and acid.

The 2½ gallon size extinguisher will discharge a stream of extinguishing liquid a distance of from 30 to 40 feet for about one minute. The 1¼ and 1½ gallon sizes have an effective discharge time of from 35 to 40 seconds. The extinguishing value of the liquid is considered to be due only to the water it contains and not to any chemicals in solution. The 2½ gallon size has been assigned an A-1 classification and the 1¼ and 1½ gallon sizes are given an A-2 classification.

Maintenance of this type of extinguisher requires periodic external inspection and yearly discharge and recharging operations. The latter includes close examination of the container for mechanical injury, corrosion and damage by freezing; examination of the glass bottle for cracks; examination of the hose and nozzle for obstructions and defects caused by such things as age and mechanical injury; examination of the rubber gasket in the cap to ensure that it is in place

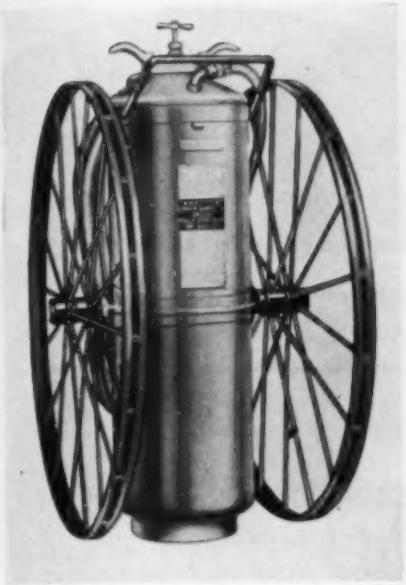


Fig. 2. Wheeled Soda and Acid Type. Available in 17 and 33 gallons capacity.

and in good condition. The container, hose and nozzle always should be washed out thoroughly before recharging. The sodium bicarbonate and water solution should be thoroughly mixed in a separate, clean vessel and strained into the extinguisher container to prevent particles from entering and clogging the hose and nozzle or the strainer at the outlet elbow.

Extinguishers of the soda and acid type also are available in large wheeled units, of 17 gallons and 33 gallons charged liquid capacity. Figure 2 is an example. These units discharge streams having a range up to 50 feet for a period of about three minutes through a nozzle on 50 feet of hose. They differ in operation in that they may have a manually operated stopple which must be opened to permit the acid to flow into the sodium bicarbonate solution after the unit is tipped to its lowest position of rest. Also, the nozzle is equipped with a shut-off valve to control stream flow.

Consideration must be given to the over-all width of these wheeled units and to the width of door openings in the buildings so that the extinguisher may be easily moved from one section of a building to another. Maintenance of these large units is similar to that of the small extinguishers.

DRY CHEMICAL TYPE

The essentials of this extinguisher, as shown in figure 3, are a container filled with a specially prepared dry powder that is the extinguishing agent; a cartridge charged with carbon dioxide under high pressure, to be used as the expellant; a hose and valve controlled nozzle, and a means of causing the gas to be released from the cartridge.

The extinguisher is put into operation by supporting it in the *upright* position, pulling the safety pin, and pushing a lever or turning a small handwheel to cause the carbon-dioxide gas in the cartridge to be discharged through a tube into the outer container. The discharge of powder may then be entirely controlled by the lever operated valve at the nozzle. The valve at the nozzle is purposely *not* gas tight; therefore, the gas expellant slowly will leak away after release from the cartridge but will be retained long enough completely to discharge the powder in one normal period of operation on a fire.

The dry powder chemical is sodium bicarbonate, specially prepared by the manufacturer of this type of unit. Ordinarily, sodium bicarbonate is subject to caking caused by moisture absorption. This has been prevented by enclosing the individual particles of powder in a thin, water resistant film. Hence, the powder flows freely (almost like a liquid) through the hose and nozzle when agitated and pushed by the expanding gas.

This extinguisher is suitable for use on fires involving flammable liquids and gases, and electrical equipment; reports have also been made concerning this type of extinguisher being used to suppress temporarily class A fires, with final extinguishment accomplished by the use of water. Extinguishment can be effected only if the concentration of powder diffused just above the burning surface is at or greater than a certain minimum concentration. Below this concentration the fire will continue unabated.

Fig. 3. Dry Chemical Type. Specially prepared dry powder is the extinguishing agent.

The dry chemical hand portable type of extinguisher is available in five sizes ranging from 4 to 30 pounds. The approximate effective horizontal range in feet varies between 10 and 12 feet. The time of operation is controlled by the operator but should be of the order of from 10 to 30 seconds.

Maintenance of dry chemical extinguishers involves periodic inspection and a thorough yearly inspection. Recharging after use should include blowing the powder out of the hose and nozzle, adding powder to the proper level in the container, and replacing the cartridge.

The yearly inspection should include the following: check the powder for caking and proper level; accurately weigh the cartridge to make sure the gas has not leaked out; examine all the external parts and container for mechanical injury or defects; make sure hose, nozzle and internal tubes are not obstructed.

Only powder prepared by the manufacturer of the extinguisher should be used for recharging. *Never* wash out any part of the extinguisher with water or any other liquid. The powder container is required to withstand a hydrostatic test of 500 pounds' pressure per square inch without leakage or permanent distortion. Weakening of the container, cap or hose, caused by mechanical injury or corrosion, may cause rupture when the extinguisher is put into operation. It is obviously necessary to make sure that the rubber gasket in the cap is in place and in good condition to prevent leakage of gas and powder when the extinguisher is discharged.

Dry chemical extinguishers are also available in wheeled units carrying 140 and 300 pounds of powder. Powder is expelled by means of a separate cylinder of nitrogen. Discharge is through 50 feet of ¾ inch hose with a dual stream valved nozzle. Either a long-range (35 to 45 feet) straight stream or a short (15 feet) fan shaped stream may be produced.

(To be continued)

NEWS

1949's Major Educational Events . . . Supports Bill for Extending Social Security to Colleges . . . Millions for Research . . . Discriminatory Questions Eliminated From Application Blanks . . . Dispensing Machines Save Labor

10 Major Educational Events of 1949 Listed

WASHINGTON, D.C. — Foremost among the 10 major educational events of 1949 was the creation of the National Citizens Commission for the Public Schools, headed by Roy E. Larsen, president of Time, Inc., say the country's educational editors speaking through the Educational Press Association.

Other events given greatest weight by association members are:

1. Cardinal Spellman-Mrs. Roosevelt debates on federal aid to education, as a result of which Congress sidetracked the issue.
2. Nationwide observance of John Dewey's 90th birthday.
3. The state governors' recognition of the shortcomings of their school systems as reflected in a study, prepared under their auspices, entitled "The 48 State School Systems."
4. Launching of the first regional education program in the South, through which states share their schools in training doctors, dentists and veterinarians.
5. Decision of the Educational Policies Commission that Communists be barred from teaching in the nation's classrooms, outlined in the commission's significant volume, "American Education and International Tensions."
6. America's startled awareness that enrollments resulting from increased birth rates will be higher than originally estimated.
7. Congressional defeat of the Hoover Commission proposal to create a Department of Welfare. Many educators had opposed this, fearing political domination of the Office of Education under such a plan.
8. Increased pressure from many directions and in many forms to end discrimination in schools and colleges.
9. Creation of the National School Boards Association, through which some 100,000 local school boards with a membership of between 500,000 and 600,000 laymen now have a voice in American educational policies.

T.I.A.A. Wants Social Security Coverage for College Teachers

NEW YORK.—A recent study by Teachers Insurance and Annuity Association of America points out that, because extension of Social Security coverage to college staff members under the pending Doughton bill is not automatic, many may not be fully covered and teachers in some publicly supported institutions may receive no benefits at all.

The differences in benefits, implications for employment, and adjustment problems confronting colleges and universities in connection with the Doughton bill are examined in the latest issue of T.I.A.A.'s periodic bulletin.

Although the association takes issue with some features of the bill, it strongly supports the general principle of extending Social Security coverage to the college world. The bulletin says: "We believe coverage, especially of the Old-Age and Survivors Insurance program, should be extended to persons in educational work. It seems quite unfair to exclude a most worthy occupational group from the benefits of a national program that will undoubtedly be supported not only from pay-roll taxes but also in the long run partially from general tax revenues."

Among the Doughton bill provisions cited as of major importance to colleges are the following: selective extension of coverage; addition of disability benefits, and increases in retirement and survivor benefits.

$100,000,000 Federal Aid for Research

NEW YORK.—A recent survey by the *New York Times* of 60 colleges and universities shows that during the current academic year the federal government will be giving 200 institutions more than $100,000,000 for research purposes and that industry will be contributing $25,000,000. According to the survey, this amount constitutes an increase of 500 per cent over the funds of prewar years.

Although various agencies have provided funds for research, the Department of Defense, the Atomic Energy Commission, the Department of Agriculture, and the Federal Security Agency contributed the largest amounts. The applied sciences are receiving the major portion of the research funds.

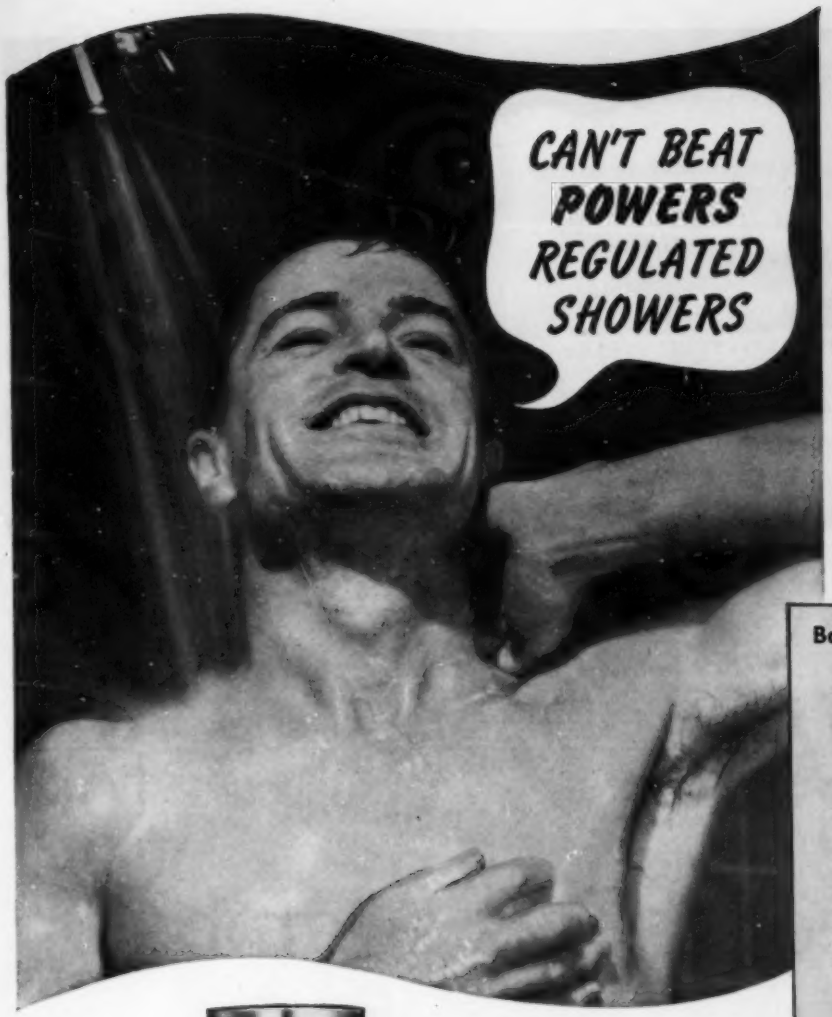
It has been feared by some college administrators and educators that colleges and universities may lean too definitely in the direction of applied projects at the expense of fundamental research. It also is felt that the highly concentrated research program, placed in a few specialized areas, will "freeze out" the smaller colleges and harm the whole field of research.

New York Colleges Drop Discriminatory Questions

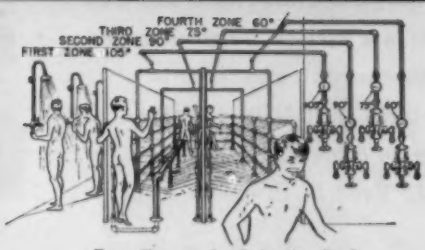
NEW YORK.—According to a report submitted by the board of regents for higher education in the state of New York, virtually every nondenominational college and university in the state has eliminated questions dealing with race, color or religion from its student application blanks.

The Education Practices Act, which was adopted in the spring of 1948 when the state university was estab-

(*Continued on page* 45)



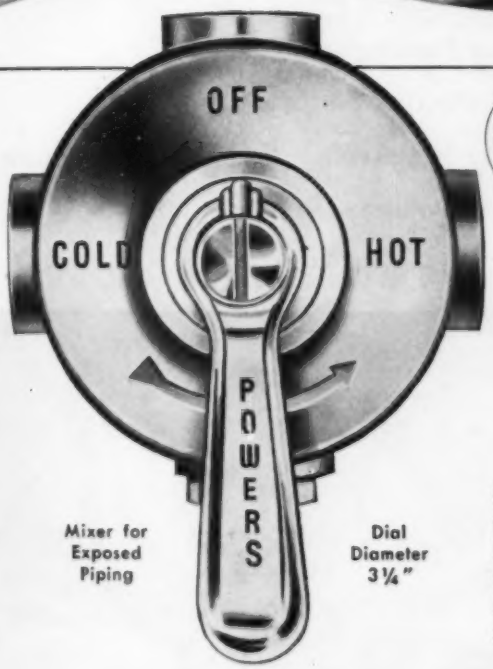
OTHER TYPES OF POWERS SHOWER CONTROLS



Zone Showers for Swimming Pool

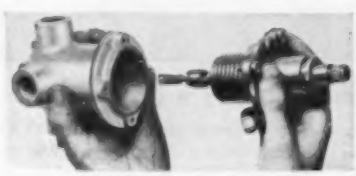
Bathers can really relax and enjoy a Powers regulated shower. No danger of scalding. No unexpected temperature changes.

6" diam. dial.



Mixer for Exposed Piping

Dial Diameter 3¼"



Only One Moving Part

POWERS

Type H

Thermostatic SHOWER MIXERS

are SAFE against scalding caused by

1 PRESSURE *or* 2 TEMPERATURE

fluctuations in water supply lines

Safer—because of their quick acting response to any change in temperature setting, pressure or temperature variations in water supply lines. Users report control within ½°F. **Greater Comfort**—shower temperature remains constant wherever set. No jumpy temperatures. **More Economical**—POWERS thermostatic mixers promptly deliver showers at the right temperature...no waste of time, hot or cold water.

For new installations or when modernizing obsolete showers . . . play safe, use Powers type H thermostatic shower mixers. May we send Circular H-48? **CHICAGO 14, ILL., 2706 Greenview Ave. • NEW YORK 17, N. Y., 231 E. 46th St. LOS ANGELES 5, CAL., 1808 W. Eighth St. • TORONTO, ONT., 195 Spadina Ave.**

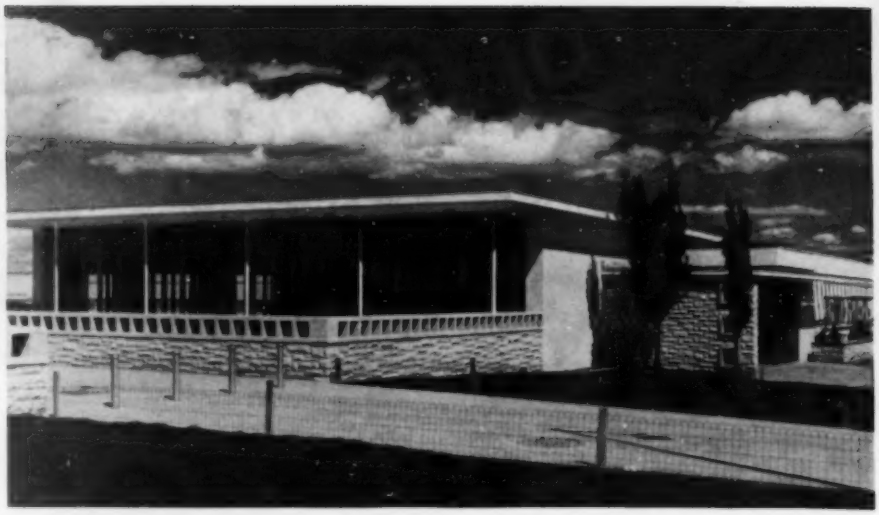
THE POWERS REGULATOR CO.

OFFICES IN 50 CITIES • SEE YOUR PHONE BOOK

Over 55 Years of Water Temperature Control

49HM

Exterior view Community Center Cafeteria, Los Alamos, New Mexico, operated for United States Atomic Energy Commission by Fred B. Prophet Company, Detroit, Michigan. *Anchorglass* dinnerware and glassware is a part of the efficient and handsome equipment of this cafeteria as it is in 40 other...and more to come...installations of the Fred B. Prophet Company.



Anchorglass too, was approved at Los Alamos

Everyone familiar with mass feeding problems knows and respects the Fred B. Prophet Company. So it is important to know how highly Mr. Fred B. Prophet, Chairman of the Board, regards *Anchorglass* products. Read his letter.

Anchorglass ROYAL RUBY

Rich and distinctive Anchorglass Royal Ruby, attractive and colorful, is ideal for use in either color harmony or contrast settings. The full line includes every item you will need for modern, practical table settings.

Anchorglass JADE-ITE FIRE-KING RESTAURANT WARE

Cut your dinnerware costs in half with Jade-ite Fire-King. Heat-proof...will not crack or craze from hot foods. Stain-proof...smooth, hard surface will not discolor. Rugged...made of durable Fire-King Ovenglass. Sanitary...non-absorbent, easy to clean and keep clean. Colorful...makes food look better. Available in a complete service...ideal for restaurants, hotels, cafeterias, lunchrooms, institutions, fountains and coffee shops.

FRED B. PROPHET COMPANY
DETROIT, MICHIGAN

INDUSTRIAL FEEDING SYSTEMS PLANNED, INSTALLED AND OPERATED

September 8, 1949

Anchor Hocking Glass Corporation
Lancaster, Ohio

Gentlemen:

As you know, we made our first complete installation of Jade-ite Fire-King dinnerware in one of our industrial cafeterias approximately a year ago. Since that time we have completely equipped some forty other of our installations with Jade-ite Fire-King. Such an expanded use of your product was made possible only by the fine customer acceptance of Jade-ite Fire-King dinnerware, by its downright attractiveness and great resistance to breakage.

Our plans call for the installation of Jade-ite Fire-King dinnerware in forty more of our units, and, frankly, our experience, both acceptance and cost-wise, has been so satisfactory we felt you merited this completely unsolicited and well deserved commendation.

Very truly yours,
FRED B. PROPHET CO.
F B Prophet
Fred B. Prophet
Chairman of the Board

Get that! They tested ANCHORGLASS in one installation. Now ANCHORGLASS is used in 40... and more to come!

Anchorglass TUMBLERS

You will find exactly what you want in Anchor Hocking's extensive line...a complete range of styles and capacities; plain or decorated; crystal or colored; pressed or blown; footed, heavy bottom, bulge or straight side tumblers.

Ask your jobber for samples and prices, or write us.

Anchor Hocking Glass Corporation Lancaster, Ohio

"The most famous name in glass!"

With Water Tank and Vacuum for Rug Scrubbing

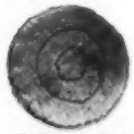
With Dispenser for Hot Waxing

★

Interchangeable Brushes, Pads, Sanding Disc

Wire Brushes

Fibre Brushes



Polishing Pad

Steel-Wool Pad

Sanding Disc

THE *Multiple-Purpose*
FLOOR-MAINTENANCE MACHINE THAT'S
Two Sizes in One!

Here is a floor-maintenance machine that not only can be used for many types of floor care, but also affords the further economy of a machine that is two sizes in one. This *100 Series Finnell*, in one of the larger sizes as shown above at left, can be reduced to the small size unit shown in circle.

Note the low, trailer-type construction of the machine, and how easily it goes beneath furnishings. Thus it is ideal for use in crowded areas. In fact, the dual size feature and low construction of the machine adapt it to use on many floors otherwise inaccessible to machine care.

As easy to handle as a household vacuum cleaner, yet this *Finnell* is powerful . . . fast . . . and thorough. Mounts a G. E. Drip-Proof Capacitor Motor . . . is equipped with Timken Bearings. And the ruggedly constructed worm drive, housed in an extra-capacity leak-proof gear case, lubricated for 1500 hours, assures smooth, noiseless performance. A precision product throughout. Three sizes: 13, 15, and 18-inch brush diameter.

For consultation, demonstration, or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 4401 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

Everything FINNELL for Floor Care

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

(*Continued from page* 40.)
lished and put into effect in July of that year, was designed to end such discrimination. Under the act it is illegal for colleges to ask for an applicant's race, religion or color when he applies for admission. It gives the education department of New York authority to investigate complaints and then enforce its findings through the supreme court if necessary.

Caution Colleges on Fire Hazards; Tips on Safety

WASHINGTON, D.C.—The recent wood dormitory tragedy at the University of Oklahoma, which claimed the lives of three students and injured 21 others, points up once again the urgency of the fire hazard problem on the college campus, says the National Education Association's safety education commission.

Here are some tips from the commission on outwitting the fire menace:

1. Watch for flaws in heating, ventilating, air conditioning systems; overfusing in electrical system; improper handling of high temperature devices, inflammable liquids, explosives, in laboratories and shops; grease accumulation in kitchens; unsafe conditions in lecture halls and auditoriums, such as combustible curtains, costumes, scenery and insufficient fire exits.

2. Maintain a campus fire department, adequately staffed with employe personnel that remains "on call." This group should be considered as a unit of the city fire department, should meet periodically for training and discussion, and receive nominal compensation. Close cooperation with the city fire department is essential.

3. Students trained in fire fighting should live in the campus fire house and be available for night duty.

4. Request your state fire safety officials to make periodic inspections—possibly three times a college year—of each building on campus. Enlist cooperation of the Greek-letter societies to include in the survey their off-campus houses. Ask your college of engineering to take part in safety surveys and to make effective recommendations for improvements.

5. Appoint student fire wardens. Train them in turning in fire alarms, procedures for leaving burning buildings, proper use of a fire extinguisher and the automatic sprinkler system, and methods of protecting and saving property in the event of fire. Correct use of equipment should be demonstrated by a member of the university fire department.

WASHINGTON AT A GLANCE

WASHINGTON, D.C.—Legality of the "loyalty oath" for state and local employes remains untested in the Supreme Court. The high tribunal recently refused to probe legality of a Los Angeles County "employe-loyalty test" while the issue is still to be dealt with by California courts. . . . "Universities of the World," a comprehensive guide to foreign colleges, universities and technical institutes, will be published this month ($12) by the American Council on Education. Its 944 pages cover more than 2000 institutions in 82 countries outside the U.S. . . . Modern college buildings, with lots of window space, create a glare problem for students and faculty working inside. The National Bureau of Standards says your school can minimize glare by using small quantities of a newly developed transparent plastic window coating now on the market.

"Your Federal Income Tax" is available at 25 cents from the Government Printing Office, Washington 25, D.C. This new edition contains facsimiles of income tax forms and added information on appeals procedures available to taxpayers. . . . The biggest problems to face college business administrators in 1950 will involve campus building needs; personnel relations; contracts with the Veterans Administration and with other U.S. agencies for research, and the huge, ever-present problem of financing higher education, said a spokesman for the U.S. Office of Education. . . . The Veterans Administration has the right to enforce its requirements barring avocational and flight training. So ruled the Federal Court of Appeals on December 5.

Help in arranging statistical data for publication is offered in a new Bureau of the Census manual on Tabular Presentation (pp. 268; price $1.50) from the Superintendent of Documents, Washington 25, D.C. Right and wrong methods are shown, practical problems outlined and illustrated with 500 examples. . . . None of the colleges and universities in the Washington, D.C., area banned the *Soviet Information Bulletin*, a check shows, despite the fact that such blacklisting has become popular in other parts of the country.

Charged With Selling Degrees at $1 to $75

NEW YORK.—New York State authorities moved rapidly recently to dissolve a local "mail-order diploma mill" that is alleged to have sold hundreds of college degrees over the last two or three years to "students" in this country, Mexico and Puerto Rico.

According to news reports, the most popular degrees handed out by the "Christian Theological College" in New York City were the degrees of Doctor of Divinity and Doctor of Laws. Such degrees were available for fees of from $1 to $75.

It was reported that the institution also offered such diplomas as those of Bachelor, Master and Doctor of Theosophy, Doctor of Philosophy, and Doctor of the Bible. In some cases, where the fee was a fairly considerable one, arrangements were made for installment payments.

Census Enumerators Soon to Appear

WASHINGTON, D.C.—The census taker will soon visit the college campus.

Students living on campus or in near-by lodging houses will be counted at college, rather than at their homes, says the Bureau of the Census. Each residence hall and rooming house head will report on age, sex and race of each student.

College students living at home will be enumerated there. The student's place of residence while attending college is the deciding factor in whether he is counted at home or on campus.

Accredited School

KINGS POINT, N.Y.—Adm. Gordon McLintock of the U.S. Merchant Marine Academy announces that the academy has been admitted to membership by the Middle States Association of Colleges and Secondary Schools and that it can now operate as a fully accredited institution of higher education. Graduates of the academy will receive a bachelor of science degree.

NEWS

Most College Employes Exempt From Federal Wage and Hour Law

WASHINGTON, D.C.—The Department of Labor says that new wage and hour law requirements raising the minimum hourly scale to $0.75 an hour affects only college employes who produce goods or services for interstate commerce. This means that the majority of jobs on the campus in which students and nonstudents are employed are exempt from this federal law. They are still subject, however, to state law.

The new minimum wage provisions go into effect January 25.

A university press producing books and pamphlets shipped across state lines provides the commonest example of an institution's interstate industry. Therefore, both student and nonstudent workers in such an establishment are affected by the federal minimum wage law.

Employes in a school office where the principal duties are the filling out of purchase orders, dispatch telegrams or out-of-state calls in connection with university business are also covered.

The Labor Department suggests that colleges in doubt as to employes covered write to the nearest regional office of the Wage and Hour Division.

Devaluation Affects Foreign Students

WASHINGTON, D.C.—More than one-third of the 26,000 foreign students attending American colleges and universities are or soon will be in financial trouble.

Most of their troubles stem from the devaluation of the British pound. One-fifth of all foreign students come from countries that have devalued their currencies—many of which were tied to the pound. Not only British Commonwealth countries, such as Canada and India, are involved, but also Holland, France, Belgium, Iraq and other lands which send us large numbers of exchange students.

The Institute of International Education and the National Association of Foreign Student Advisers sponsored a meeting here on December 8 to consider this problem. Representatives of more than 20 embassies and legations were present. A survey has been planned to explore the extent of students' money problems.

The full effects of devaluation may not be felt immediately because most foreign students receive their allotments once or twice a year. The real pinch will come when they apply to their home governments for the next installment.

College and university officials should stand ready to work out ways to help these needy students. Avenues to be explored include loans, arranging for employment on a part-time basis, exempting affected students from paying for fees, tuition, room or board.

Dispensing Machines in Colleges Dispense With Expensive Labor

WASHINGTON, D.C.—The Department of Commerce suggests colleges may be able to cut dining hall and cafeteria operation costs by a more widespread use of coin-operated dispensing machines.

Many colleges already have installed such automatic vendors for the sale of cigarets, soft drinks, and candy. But there are now machines that sell milk, hot chocolate, soup, coffee, ice, doughnuts, cookies, ice cream, and other items standard in college cafeterias. A newcomer in the field is a machine that sells hot sandwiches, cooked by radar upon the insertion of the coin.

Most liquid-dispensing machines use paper cups or containers. Some coffee machines offer the student four choices: black coffee, coffee with sugar, with cream, or with both. Change makers and slug rejectors help prevent mixups and save employe time.

Some colleges doing heavy student meal business and having expensive behind-the-counter labor might wish to try a complete set of automatic vending machines for everything, after the style of one chain of New York cafeterias. Where there is continued intensive use of cafeteria facilities, such a system might cut labor costs sharply in the long run, says the Department of Commerce.

Other machines for which colleges might find some use are those that market books (college bookstore); aspirin (exam time); toothbrushes, cleansing tissues, electric shaves, shoe shines (residence hall washrooms).

First Six Months Best for Fund Raising, Says Chamber of Commerce

WASHINGTON, D.C.—College fund raising campaigns are more certain of success if scheduled for the first half of this year, for 1950 will be a good business year, says the national office of the U.S. Chamber of Commerce. Businessmen anticipate more earnings distributed as dividends, stable prices, favorable stock market indications.

Veterans are expected to continue spending their insurance rebates—about $2,800,000,000 worth. Auto and steel industries will continue strong, fortified by the backlog demand built up during the recent steel strike. Employment and personal savings are expected to stay at a high level.

Nearly all businessmen agree that these trends will continue during the first half of this year. A few, however, fear that the first six months' prosperity may not last all year.

Survey Reveals Students' Buying Habits

NEW YORK.—A survey conducted by the City College of New York's student newspaper, *Observation Post*, in which 3 per cent of the 6000 students at the college were participants, revealed some interesting data as to students habits. In regard to use of leisure time, it was reported that 73 per cent of the students occupied themselves with hobbies, 21 per cent with music, and 9 per cent with photography. On the average, these habits involve an expenditure of approximately $54 a year. In spite of this expense, the savings of the City College students average $418.

According to the survey, the following habits of students were uncovered:

Thirty-nine per cent of all male students smoke pipes.

The average student smokes 4.6 packs of cigarets a week.

Each student spends $5.10 a week for items other than lunch or carfare.

Of every hundred students, 3.5 are married, while 7.5 more intend to marry before graduation.

Women students buy 40 pairs of stockings and 4.5 pairs of shoes a year.

The survey was undertaken by the newspaper to show prospective advertisers that "the City College student is not a dead market."

Order Duet Desk F-142-21

NEW Duet Desk by SIMMONS

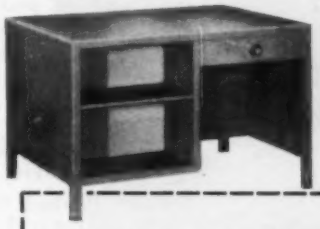
Student inspired! School approved!

Here is the most practical desk ever designed! Why? Simmons asked students what they wanted in a desk... asked school authorities, too. Result! the completely new Duet Desk.

Students like the Duet Desk because it provides ample room for two...a large 47⅓ x 32 inch surface for drawing or writing...a roomy drawer for each student... plenty of leg room... handy shelves for books and papers...one lamp can supply sight-saving light for both users...compact—gives more floor area ...everything needed within easy reach means better concentration!

School officials like the Duet Desk because it fits neatly in small or odd spaces or against walls...*saves the cost of a second desk*... its Simfast finish resists defacement by acids, coffee, ink stains and other liquids, heat and cold... constructed of steel, it can take years of use and abuse... soundproof case and drawer slides... positive drawer stops that prevent damage when drawer is pulled out too far... encourages neatness... easy to clean.

For complete information about the 16 colors available, sizes, prices, see your equipment dealer. Or, mail the coupon.



Note how the Duet Desk gives each student two large bookshelves. Reference and textbooks are in plain sight and easy reach. DESK ALSO AVAILABLE WITH LINOLEUM TOP.

SIMMONS COMPANY

Display Rooms:

Chicago 54, Merchandise Mart • New York 16, One Park Avenue
San Francisco 11, 295 Bay St. • Atlanta 1, 353 Jones Ave., N.W.

SIMMONS COMPANY
Merchandise Mart, Chicago 54, Illinois

Please send all the facts about your new Students' Duet Desk. We need about.....desks.

Name.....

Address.....

City.....State.....

NEWS

Asks Cut in Tuition at Rutgers University

TRENTON, N.J.—New Jersey legislators recently were asked to cut tuition at Rutgers State University by more than 50 per cent as a means of placing public higher education in the state on a democratic basis. The state university is asking for an over-all increase of $4,038,302 to bring the total state appropriation to $8,453,269. It compares to $4,414,967 for the present year.

Dr. Mason W. Gross, provost of the university, has asked the state to include approximately $1,500,000 to make it possible for the university to reduce tuition from an average of about $385 a year to $175. Dr. Gross said the present fees are depriving too many qualified New Jersey young people of the opportunity for college because of their financial status. Dr. Gross also pointed out that a survey made last year by the U.S. Office of Education revealed that only in Vermont was the state tuition higher than that charged in the state of New Jersey. In fact, 19 states charge no tuition to their own residents, Dr. Gross stated.

To Conduct Course for Dentists by Telephone

CHICAGO.—The University of Illinois is planning an elaborate professional extension program in the school of dentistry with the transmission of a postgraduate course by telephone to 142 dental societies from coast to coast. Approximately 7000 dentists in 39 states, the District of Columbia, and Canada will hear the monthly series of six two-hour lectures and discussions on "Current Advances in Dentistry." More than 30 dental specialists constitute the faculty.

In order to participate in this extension program, each person enrolled will pay a fee of $10 for the course, regardless of the distance of his home from Chicago.

DIRECTORY OF ASSOCIATIONS

Association of College and University Business Officers

Central Association

President: Fred W. Ambrose, State University of Iowa; secretary-treasurer: L. R. Lunden, University of Minnesota.

Eastern Association

President: H. R. Patton, Controller, Carnegie Institute of Technology; secretary-treasurer: Irwin K. French, Middlebury College, Middlebury, Vt.

Southern Association

President: C. B. Markham, Duke University; secretary-treasurer: Gerald D. Henderson, Vanderbilt University.

Western Association

President: Alf E. Brandin, Stanford University; secretary-treasurer: James R. Miller, University of California.

Convention: May 7-9, 1950, Claremont Hotel, Berkeley, Calif.

Schools for Negroes

President: A. I. Terrell, Winston-Salem Teachers College; secretary: L. H. Foster Jr., Tuskegee Institute.

Association of College Unions

President: Donovan D. Lancaster, Bowdoin College; secretary-treasurer: Edgar A. Whiting, Cornell University; editor of publication: Porter Butts, University of Wisconsin.

Convention: April 26-29, 1950, New Ocean House, Swampscott, Mass.

Association of Physical Plant Administrators of Universities and Colleges

President: L. L. Browne, University of Arkansas; secretary-treasurer: A. F. Gallistel, University of Wisconsin.

Convention: May 1950, Yale University, New Haven, Conn.

American College Public Relations Association

President: E. Ross Bartley, Indiana University; secretary-treasurer: Edward P. VonderHaar, Xavier University, Cincinnati.

Convention: June 27-30, 1950, University of Michigan, Ann Arbor.

College and University Personnel Association

President: George W. Armstrong, University of Pennsylvania; secretary-treasurer, Ruth Harris, University of Illinois.

National Association of College Stores

President: Herbert Hays, Berea College; executive secretary: Russell Reynolds, Box 58, 33 West College Street, Oberlin, Ohio.

Convention: April 20-22, 1950, Palmer House, Chicago.

National Association of Educational Buyers

President: Holger B. Bentsen, George Williams College; secretary-treasurer: Bert C. Ahrens, 45 Astor Place, New York, N.Y.

Convention: May 3-6, 1950, Houston, Tex.

"College by Radio" for Arizonians

TUCSON, ARIZ.—The University of Arizona recently launched a program of "college by radio" with full-scale academic credits for work that is being broadcast by statewide networks. Students will receive their lectures by radio, will study from textbooks, and write a final examination just as if they were in residence for the university's regular session classes.

From the Arizona broadcast, students will receive assignments for reports that are to be graded and returned with comments. Auxiliary reading materials are mailed to students. They purchase their own textbooks or use books from their local public libraries.

Chest X-Rays Required at Catholic University

WASHINGTON, D.C.—Catholic University of America has developed an effective way of screening its students for tuberculosis.

Beginning with the February term, all 4700 students—day and evening, in all schools—will be given chest x-rays as a compulsory part of their semester's registration. No student will be considered as registered until he has been so examined. Mobile units for the campus checkup are being supplied by the District of Columbia Tuberculosis Association.

A university spokesman stated that to date no way had been found to require faculty members to have the examination. However, there will be a well publicized voluntary campaign for faculty x-rays, and most of the teaching staff will undoubtedly cooperate.

Modernization Program

NEW YORK.—Dr. Harry N. Wright, president of City College of New York, announced that plans had been made for a complete overhauling of City College's antiquated lighting and heating systems. This project is expected to take three years and to cost approximately $1,000,000. The program will include converting the college's uptown center from direct current to alternating current, installing modern fluorescent lighting fixtures, and completely rehabilitating the school's 42 year old heating plant.

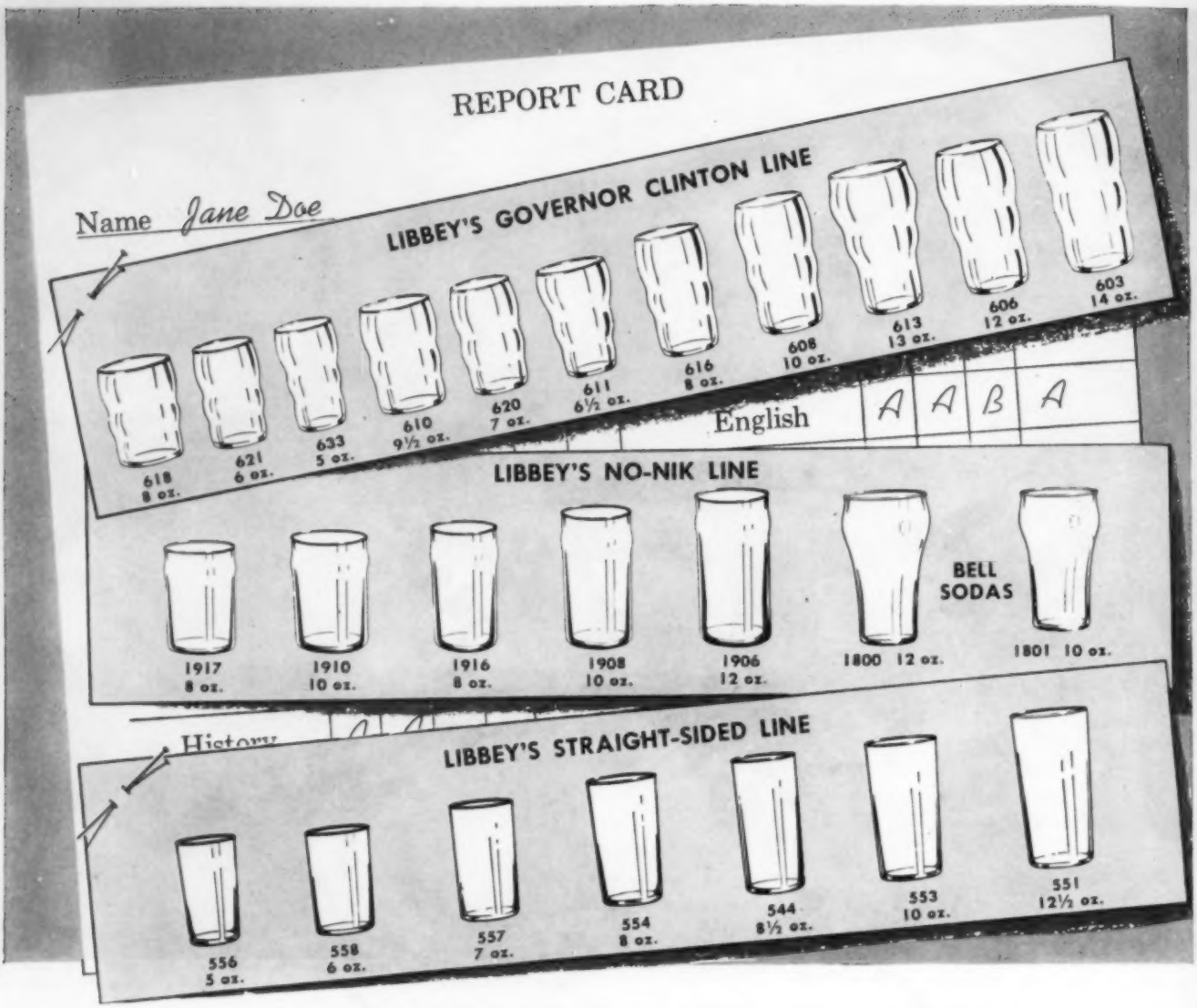
Sure winners!

You can't serve plumper, more flavorful, more vitamin-packed grapefruit segments than these—sun ripened in the Rio Grande Valley . . . picked and packed by us especially for your table. The Sexton label assures you the most of the finest . . . every can brimming full.

JOHN SEXTON & CO., 1950

Sexton

Good Food for Pleased Guests



HERE'S THE TUMBLER SERVICE

You'll rate "A" for economy!

The hurried, eager movements of youth are always a menace to the life of tumblers in school cafeteria service. That's why it will pay you handsomely to standardize on Libbey Heat-Treated Tumblers . . . famous for the "bounce" quality that makes them last from 3 to 5 times longer than ordinary tumblers.

Three complete lines . . . 25 different style tumblers . . . fit your every need. And the longer life they bring to your lunchroom operation means lower overhead and less need for storage space.

Enroll Libbey Heat-Treated Tumblers at *your* school and begin to effect these economies *now*. Contact your near-by Libbey supply dealer, or write us direct, for samples and prices of the line for your need.

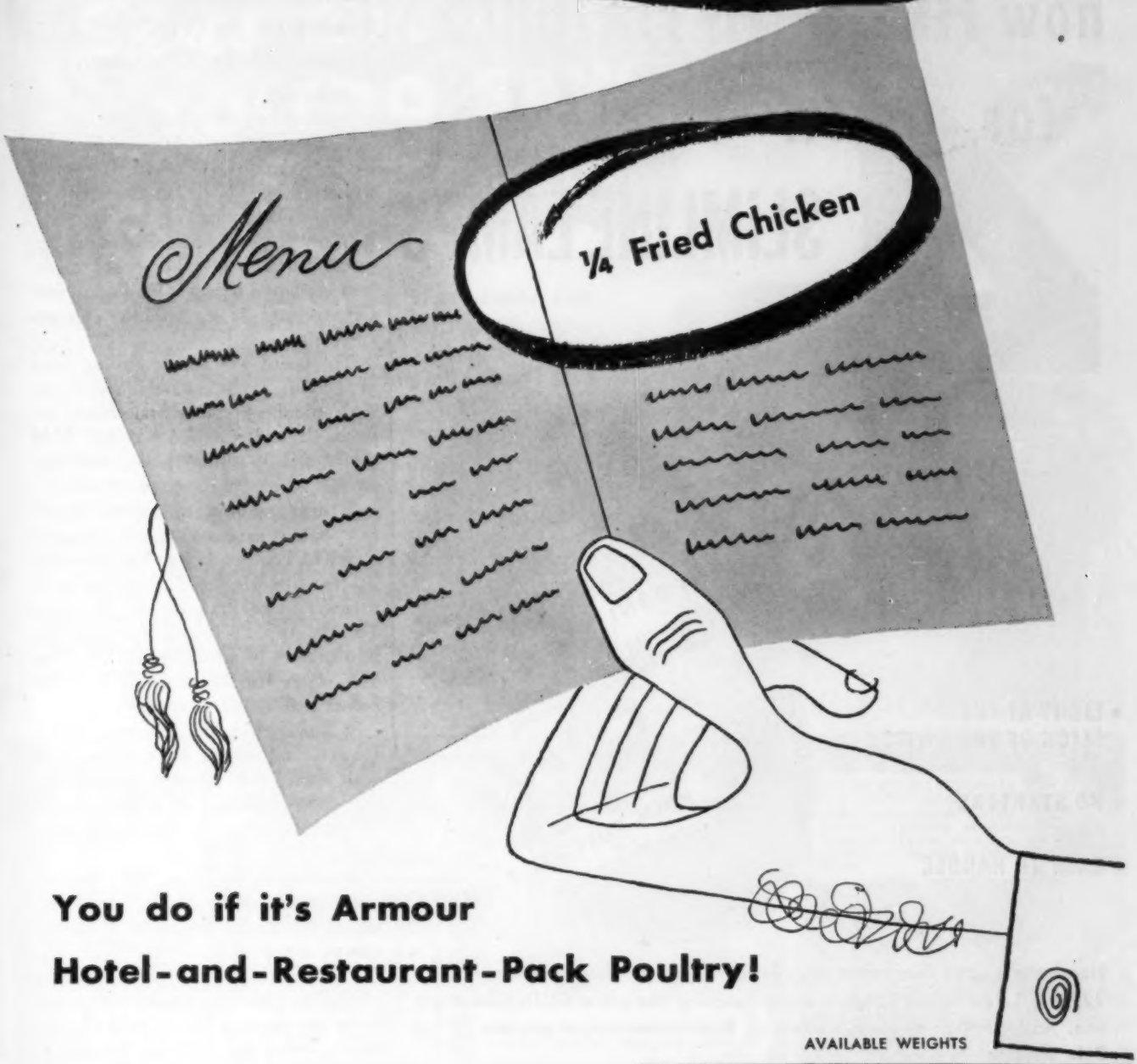
P.S.—Each Libbey Heat-Treated Tumbler has chip-resistant rims guaranteed: "A new glass if the 'Safedge' ever chips!"

LIBBEY GLASS BOUNCE TUMBLERS

Libbey HEAT-TREATED

Libbey Glass, Division of Owens-Illinois Glass Company, Toledo 1, Ohio

Know exactly how much that POULTRY PORTION cost you?



You do if it's Armour Hotel-and-Restaurant-Pack Poultry!

Armour Cloverbloom Hotel-and-Restaurant-Pack Broilers and Fryers come in 11 *uniform* sizes and weights—a uniformity that means *controlled portion costs* and *equal* portions for all servings.

Cloverbloom Fryers and Broilers are processed from select meat-type birds only—quick-frozen and fully-drawn in quantities to fit your needs.

Yes, Armour's widespread procurement and distribution facilities can quickly supply you with *flavor-fresh* poultry anywhere in the 48 states—52 weeks a year.

The chart at right shows the large selection of uniform weights available to you in Armour Cloverbloom Hotel-and-Restaurant-Pack Broiling and Frying Chickens. For a FREE, handy, Armour Cloverbloom Chicken Portion Cost Chart, see your Armour Salesman or write to:

AVAILABLE WEIGHTS

SYMBOL & CLASS NO.		N. Y. DRESSED WT. PER DOZ.	DRAWN WT. PER BIRD
BROILERS			
H-01	Packed 6 Birds (12 Halves) Per Box	17 to 18#	1# to 1# 1 oz.
H-1		19 to 20#	1# 2 oz. to 1# 3 oz.
H-02		21 to 22#	1# 4 oz. to 1# 5 oz.
H-2		23 to 25#	1# 6 oz. to 1# 7 oz.
H-03		26 to 27#	1# 8 oz. to 1# 9 oz.
H-3		28 to 30#	1# 10 oz. to 1# 12 oz.
FRYERS			
H-04	Whole Birds (6 Birds) Per Box	31 to 32#	1# 13 oz. to 1# 15 oz.
H-4		33 to 35#	2# to 2# 2 oz.
H-05		36 to 38#	2# 3 oz. to 2# 5 oz.
H-5		39 to 42#	2# 6 oz. to 2# 9 oz.
H-06		43 to 47#	2# 10 oz. to 2# 15 oz.

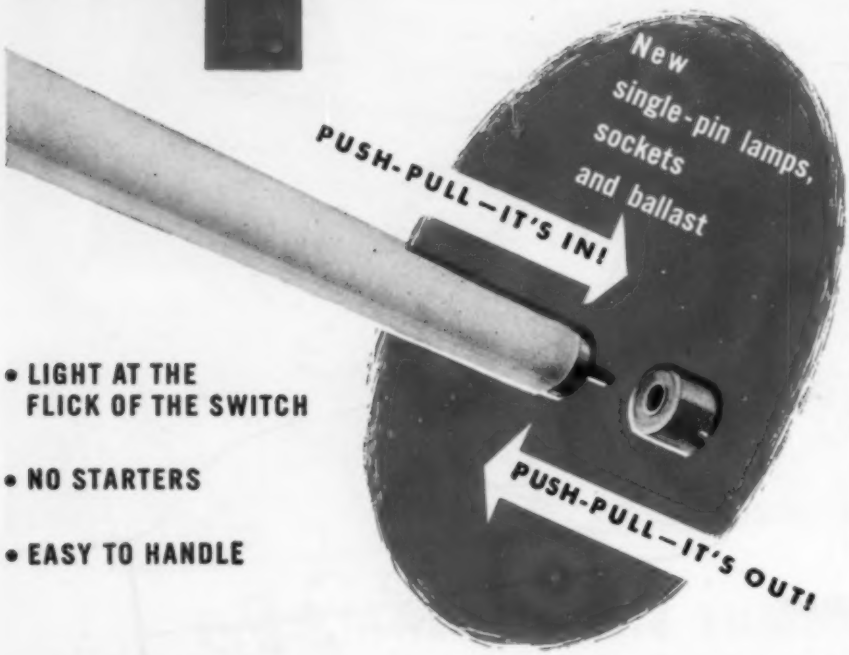
ARMOUR AND COMPANY

Hotel and Institution Department
General Offices • Chicago 9, Illinois

now ALL GUTH FIXTURES

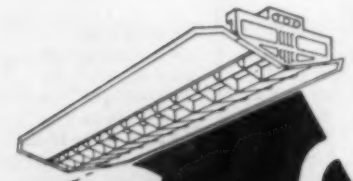
for 4 ft.

4 SLIMLINE LAMPS



- LIGHT AT THE FLICK OF THE SWITCH
- NO STARTERS
- EASY TO HANDLE

Here's the biggest fluorescent news in years: you can now use the new 4-ft., 425 ma. T-12 Slimline Lamps in every fixture of the entire GUTH fluorescent line. And the 4-ft. Slimline is efficient! Same lumen output per foot as the 8-ft. Slimline.



Now you have your choice:

the 4-ft. Slimline
the 8-ft. Slimline
standard 40-W lamps
standard 85-W lamps

in GUTH fluorescent fixtures.

For full details, write

Guth LIGHTING

THE EDWIN F. GUTH COMPANY / ST. LOUIS 3, MISSOURI

148

Leaders in Lighting Since 1902

NEWS . . . . . .

College Appeals Procedure to V.A.; Thompson Is Chairman

WASHINGTON, D.C.—Carl R. Gray, administrator of veterans affairs, announced that Charles Manfred Thompson, dean emeritus of the University of Illinois, College of Commerce and Business Administration, will be chairman of the new Veterans Tuition Appeals Board. The other board members are Lewis Kemper Williams, New Orleans, and Jo Zach Miller, Kansas City, Mo.

The board will review tuition rates of certain profit schools dissatisfied with amounts previously negotiated between it and the V.A. It will hold hearings in Washington, and will visit schools to inspect their operation.

Schools wishing to appeal should first obtain free copies of "General Rules of Practice Before the Veterans Tuition Appeals Board" from any V.A. regional office or from the Veterans Tuition Appeals Board, Veterans Administration, Washington 25, D.C. The V.A. urges that schools study the rules before attempting to appeal.

When applying for a hearing under the law, the school must show that both it and the Veterans Administration have exhausted all administrative means of settling the tuition disagreement.

The institution must also outline cost items disallowed by the V.A. which the school desires to have reviewed.

The board will decide upon its jurisdiction to hear the appeal. If it believes the question comes properly before it, the board will ask the school to furnish certain additional financial data.

The V.A.'s side of the case will next be considered by the board and a copy of the agency's statement will be sent to the college to give it the opportunity to reply to any new issues raised. School officials or attorneys may appear in person at the hearings which ensue. Following the conclusion of hearings, the board will issue to both parties its initial findings, decisions and reasoning. Either the school or the V.A. may file exceptions to any part of the initial findings and decision.

Finally, the board will make a review, based upon the entire case record, from which no administrative appeal may be taken.

Saves time on every cut!

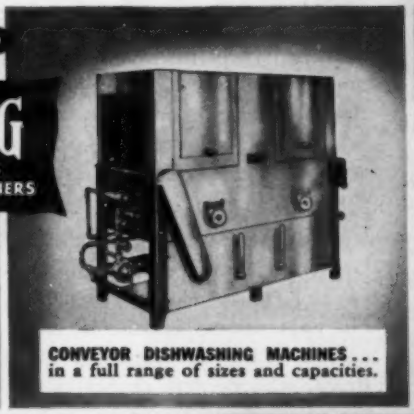
TOLEDO SAW

BUILDS *Sales* FOR YOU

Restaurant kitchens can cut a big slice of time from their work-week . . . and gain the savings of preparing cuts and portions from full sides or quarters. This new Toledo does every cutting job fast and clean . . . big capacity . . . plenty of width for splitting . . . plenty of height for big full beef rounds . . . produces clean uniform cuts . . . illuminated stainless steel meat table . . . easy to operate. New speed and EASE IN CLEANING. A great machine in performance—*and in sales!*

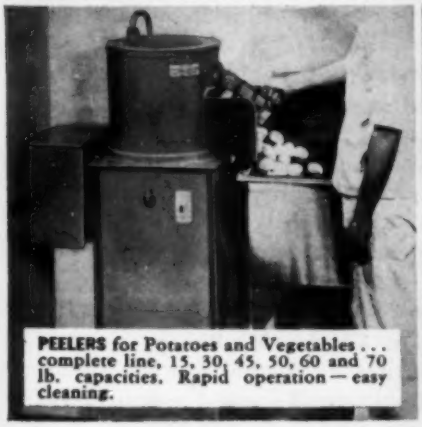
There's *profit for you* in Toledo-Sterling products . . . backed by advertising in 11 national publications read by institutions serving food. There's *satisfaction for your customers*—assured by outstanding engineering and precision manufacture. Nation-wide service. For more details, send for bulletin 1170.

HYDRO-SCRAP, pre-dishwashing machine, removes refuse by concentrated power flushing . . . operates on free hot water supplied by overflow from dishwasher.



CONVEYOR DISHWASHING MACHINES . . . in a full range of sizes and capacities.

WEIGH IT OUT! Toledo SPEEDWEIGH over-and-under scales provide speedy, accurate weighing of portions. Use Toledo receiving scales to accurately *weigh in* foods.



PEELERS for Potatoes and Vegetables . . . complete line, 15, 30, 45, 50, 60 and 70 lb. capacities. Rapid operation — easy cleaning.

TOLEDO
STEAK MACHINES, CHOPPERS, SAWS

CHOPPERS. New Speed . . . gravity feed . . . three models.

STEAK MACHINE makes tempting New Toledo Steaks.

STERLING DIVISION

TOLEDO SCALE COMPANY . . . TOLEDO 12, OHIO

NAMES IN THE NEWS

G. W. McGinty

Dr. G. W. McGinty, formerly head of the department of social sciences at Louisiana Polytechnic Institute at Ruston, has been named acting president of Northwestern State College, Natchitoche, La., to serve until a successor to **Joseph E. Gibson** can be named.

Daniel D. Test Jr., formerly in charge of foreign personnel for the Atlantic Refining Company, has been named headmaster of the Westtown School at Westtown, Pa. Mr. Test will succeed **James F. Walker,** who will retire at the end of the current academic year after having served the school for 25 years as headmaster.

Rev. J. G. Rhind

Rev. John Gray Rhind, pastor of the Northminster Presbyterian Church of Columbus, Ohio, has been named assistant to the president at Carroll College, Waukesha, Wis. He will assume teaching responsibilities in addition to his major duties as director of public relations and promotion work for the second century building program that Carroll launched in 1948.

Thomas B. Appleget has been named vice president in charge of public relations at Brown University, Providence, R.I., according to a recent announcement by **Henry M. Wriston,** president. For the last 20 years Mr. Appleget has been vice president of the Rockefeller Foundation in New York.

S. L. Blanton

Sankey L. Blanton, dean of the school of religion, Wake Forest College, Wake Forest, N.C., recently was elected president of Crozer Theological Seminary, Chester, Pa. His appointment becomes effective January 30, when he will succeed **Edwin E. Aubrey,** who resigned some months ago to accept appointment as a professor of religious thought at the University of Pennsylvania.

Dr. Raymond Chadwick, pastor of the First Methodist Church at Appleton, Wis., has been named to the presidency of Iowa Wesleyan College, Mount Pleasant. His appointment became effective January 1 when he succeeded **Dr. Stanley B. Niles,** who resigned last June after serving 11 years as president of Iowa Wesleyan.

William A. Jenkins has been named administrative vice president of Teachers Insurance and Annuity Association

R. E. Fisher

W. A. Jenkins

of America, and **Robert E. Fisher** has been promoted to the position of assistant vice president. Mr. Fisher was treasurer and business manager of Hillsdale College, Hillsdale, Mich., from 1937 to 1945.

Edward A. Ramsey, former general superintendent for the Driscoll-Mead Corporation, Geneva, N.Y., has been appointed superintendent of buildings and grounds at Hobart and William Smith Colleges. Mr. Ramsey will succeed **John H. Hoffman,** who leaves the colleges after 17 years of service.

Dr. Russell Grow, dean of the college of liberal arts of Oklahoma City University, has been elected president of McKendree College, Lebanon, Ill. His appointment became effective January 1 when he succeeded **Dr. Carl Bracy,** who became chancellor of Nebraska Wesleyan University at Lincoln.

B. H. Platt, business manager at Iowa State College, Ames, announces the following revisions in the business office staff of that institution: **J. F. Hall,** formerly chief accountant, has been appointed treasurer; **J. E. Marks,** formerly of Purdue University, assumes the new position of assistant business manager in charge of accounts, and **Robert A. Evans** of the accounting staff has been named chief accountant.

Rev. Charles S. Ball, a member of the faculty of Friends University, Wichita, Kan., has been named president of William Penn College, Oskaloosa, Iowa, to succeed the late **Forrester C. Stanley.**

W. T. Walton

W. T. Walton, assistant to the president and dean of students at Hardin - Simmons University, Abilene, Tex., has been named vice president of the university. At one time he also served as business manager of Hardin-Simmons.

William S. Carlson, formerly of the University of Delaware, has been named president of the University of Vermont, Burlington. He will take office April 1. He succeeds **Dr. John S. Millis,** who resigned last September in order to become president of Western Reserve University in Cleveland.

L. Vernon Caine, vice president of Jamestown College, Jamestown, N.D., has been named to the position of vice president of Macalester College, St. Paul. Mr. Caine's appointment becomes effective February 1. He will assist the president, **Charles J. Turck,** in general administration and will give particular attention to public relations.

M. S. Woodson

Dr. Marshall S. Woodson, former minister at Thomasville, Ga., has been named president of Flora Macdonald College, Red Springs, N.C. Dr. Woodson will succeed **Henry G. Bedinger,** who resigned in October.

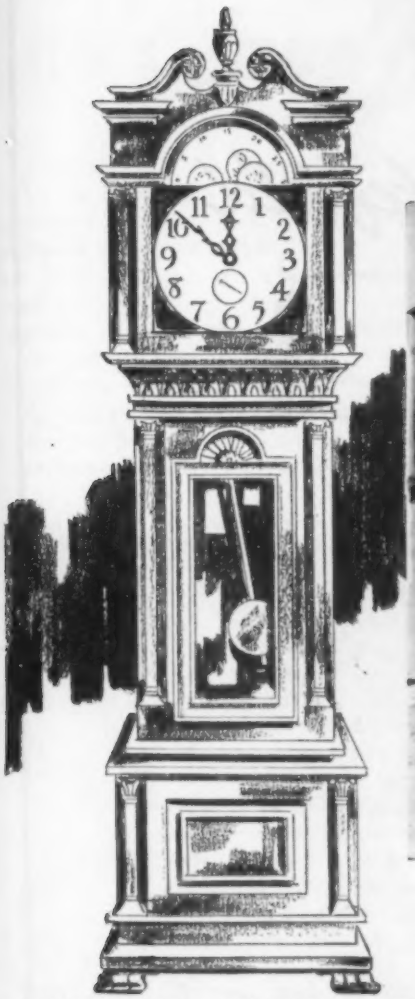
Irwin Rosen of New York has been named director of business affairs for Brandeis University, Waltham, Mass. Brandeis University is the nation's first Hebrew sponsored nonsectarian institution of higher education.

H. S. McDonald

Dr. Howard S. McDonald, president of Brigham Young University, Provo, Utah, has assumed new duties as president of Los Angeles State College.

Dr. Charles M. Bishop, president emeritus of Southwestern University, Georgetown, Tex., died recently at his home at the age of 87. He had retired as president of Southwestern University in 1922 after holding the position for 12 years.

WOOD *unchallenged for grace and charm!*



CARROM DORMITORY SUITE "Y"—The simple yet dignified character of this suite makes an exceptionally attractive and "homey" room . . . ideal for study and relaxation.

CARROM FURNITURE CRAFTSMEN *Build* FOR THE DECADES!

It is not enough that the material used for institutional furniture possess a mechanical strength of *highest* value in its ability to resist bending or compression. It should also possess that intimate and appealing beauty we sometimes define as grace and charm.

Wood is the one material — and the only material — that meets both these requirements. It is the one material of great strength that lends itself to an ease of manipulation that makes possible basic harmony and graceful lines in the finished furniture product.

And Carrom-built furniture is especially desirable for still other reasons. Above all, it is made *exclusively* for *institutional use.* It is built to have the *extra strength* in posts, legs, stretchers and joints that hard institutional use requires. It is made with a view to an institution's budget requirements.

Select for strength, for economy, basic harmony, for grace and charm and you will choose Carrom Fine Wood Furniture, made by craftsmen who "build for the decades".

CARROM INDUSTRIES INC., LUDINGTON, MICHIGAN

CAREFULLY SEASONED HARDWOOD

Only the most select, close-grained Northern Hardwoods are used in Carrom construction . . . expertly seasoned and kiln dried in our own plant, under the close supervision of "Masters of Wood"!

CARROM

WOOD FURNITURE FOR DORMITORY SERVICE

Ease of Installation

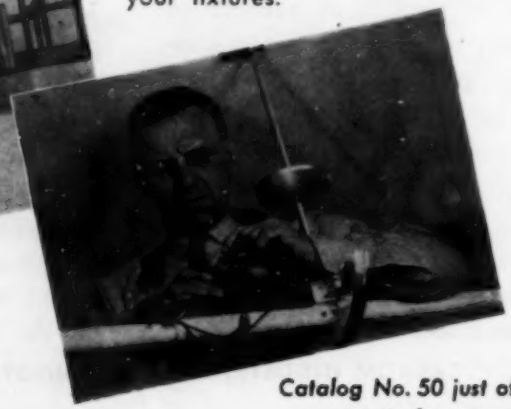
IS A FEATURE OF *Wakefield* LIGHTING EQUIPMENT

Almost like hanging a picture . . .

Everything hooks on to pre-installed straps . . .

A one-man job . . .

The secret is the pre-installed strap. First step is to secure a mounting strap to the outlet box. Next run a chalk line along the ceiling, measure off the required intervals and then attach the other mounting straps in the line. The easily assembled units are then hung on the mounting straps, unit by unit, the supporting band on the previously mounted unit providing the reflector support for the end of the next unit. A steel channel insures rigidity for the wireway, and snap-on wireway covers give accessibility for wiring. Writes one power company engineer: "Contractors have been vociferous in their praise of the ease with which they were able to install your fixtures."



1. Fully Guaranteed
2. A.F. of L. Labels
3. Underwriters Approved
4. Certified Ballasts

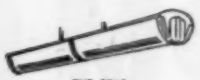
Catalog No. 50 just off the press—write for your copy!

THE F. W. WAKEFIELD BRASS COMPANY • VERMILION, OHIO

Wakefield Over-ALL Lighting

THE GRENADIER II

THE COMMODORE



THE STAR

It's *Goodform* for Greater Chair Value

REG. U. S. PAT. OFF.

GOODFORM Aluminum Chairs pay for themselves many times over—in lower maintenance, freedom from repairs and longer service life.

Because frames are of welded aluminum, they are rigid and permanently strong. They are fireproof, lightweight and easy to handle. They do not dent or bend, splinter or damage clothing.

Comfort and smart appearance are designed into Goodform chairs. Shaped seats and backs may be cushioned with luxurious foam rubber. Colorful plastic-coated upholstery of your own selection contrasts effectively with the sparkling finish of natural aluminum.

Goodform chairs keep their good looks indefinitely. The hard, satin-smooth anodic finish is kept clean and bright by simple washing with soap and water.

Write for illustrated literature and the name of the Goodform chair distributor nearest you. The General Fireproofing Co., Dept. S-13, Youngstown 1, Ohio.

GOODFORM ALUMINUM CHAIRS

GENERAL FIREPROOFING

Foremost in Metal Business Furniture

Chair illustrated is Goodform No. 4310.

There is a complete line of GF metal furniture – desks, tables, chairs, files and shelving

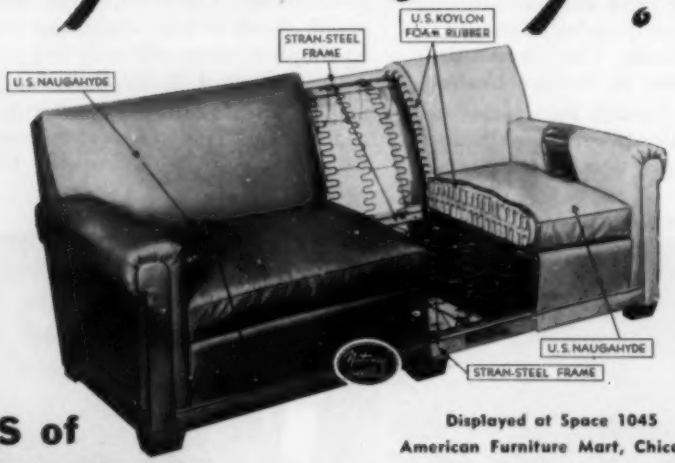
NOW-A NATIONAL BUILT

STEEL FRAME LOUNGE AND CHAIR

(PATENT PENDING)

For Tougher Usage!

POPULAR PRICED FOR COLLEGE and UNIVERSITY DORMITORIES, UNION BUILDINGS, LIBRARIES, SOCIAL RECEPTION ROOMS, Etc. WHERE DURABILITY and LONG-LIFE are NECESSARY

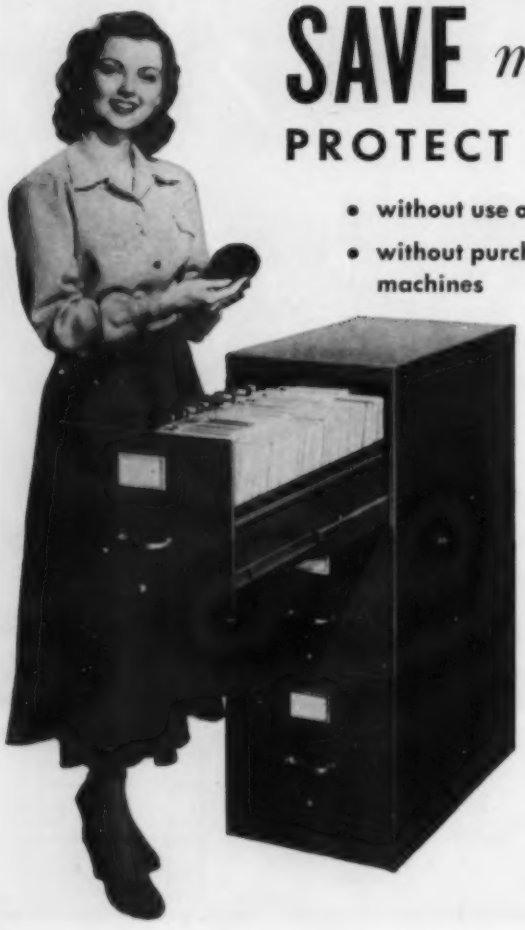


FRAMES of STRAN-STEEL

Displayed at Space 1045
American Furniture Mart, Chicago

CONSULT YOUR CONTRACT SUPPLIER OR WRITE OUR GENERAL OFFICES

NATIONAL FURNITURE MANUFACTURING COMPANY
GENERAL OFFICES
EVANSVILLE, INDIANA



SAVE *more than 98% in filing space*

PROTECT YOUR RECORDS

- without use of your personnel
- without purchase or lease of microfilm machines
- without interrupting your regular operations
- at a predetermined low cost

with Remington Rand Microfilming Service

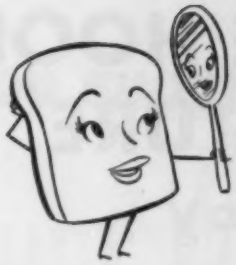
Just say the word and our Microfilming Service Department will put all of your student and administrative records permanently on microfilm—condense the contents of 160 or more standard filing cabinets into a single film cabinet. Every record will be filed on film with Microdex, Remington Rand's exclusive system of indexing. You will be able to locate any one in 60 seconds or less on the Film-a-record Reader-Desk. Duplicate rolls of film can be made simultaneously for storage in a separate location as a safeguard against loss by fire.

Send for story of what Remington Rand Complete Microfilming Service can do for you. Or, if you prefer to do your own microfilming, ask about Film-a-record equipment (for sale or lease). Write to Rm. 329, Systems—Photo Records, Management Controls Division, 315 Fourth Ave., New York 10.

Remington Rand Inc.

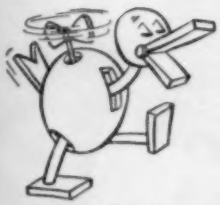
Remington Rand

Any size . . . any capacity
From 125 to 1000 slices per hour.



Every slice perfect
No bread waste, no time lost in re-toasting.

TOASTS MORE THAN 16 SLICES PER MINUTE!



Completely automatic
Needs no watching; uses current only while toasting.

16-SLICE MODEL
$410.00† Fair Trade Price
(Fed. Excise Tax Incl.)

Easy to keep clean
Light polishing with damp cloth keeps extra-thick chromium spotless.

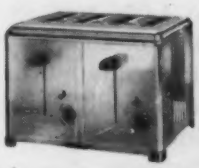
Heavy-duty construction
Ruggedly built for years and years of service.

Low-cost operation
No pre-heating, only slots making toast use current.

THE 16-SLICE MODEL pops up over 1000 slices per hour. Other sizes include the 2-SLICE, more than 125 slices per hour; the 4-SLICE, over 250; and the 8-SLICE, more than 500.

Flexibility for the future
Larger models composed of "add-on" 4-slice units.

4-SLICE MODEL
$99.50† Fair Trade Price
(Fed Excise Tax incl.)



†Price subject to change.

"Of course . . . it's Electric!"

TOASTMASTER
AUTOMATIC POP-UP TOASTERS

*"Toastmaster" is a registered trademark of McGraw Electric Company, makers of "Toastmaster" Toasters, "Toastmaster" Waffle Bakers, "Toastmaster" Roll and Food Warmers, and other "Toastmaster" Products. Copr. 1950, Toastmaster Products Division, McGraw Electric Company, Elgin, Ill.

MAIL THIS

Dept. U-10
TOASTMASTER PRODUCTS DIVISION
McGraw Electric Company, Elgin, Ill.
Send me complete information on "Toastmaster" Toasters.

Name.....
Business.....
Address.....
City.....*Zone*....*State*.....
My Dealer's Name.....

The FUME HOOD of the FUTURE
is Yours Today

Design Approved for Use by the OAK RIDGE INSTITUTE of NUCLEAR STUDIES

Kewaunee's New LOW VELOCITY FUME HOOD for Handling RADIOACTIVE ISOTOPES

No. 3600—"FUME HOOD of the FUTURE"

The Hood is made with stainless steel interiors and ducts throughout and incorporates a stainless steel working surface and trough. The working surface will support a load of 4,000 pounds. The Hood incorporates a new system of airfoils, baffles and ducts which provides a uniform flow of air over the entire face of the Hood, thus assuring evacuation of gases at extremely low velocities without interference from reverse eddies or turbulence. No auxiliary duplicate duct system for incoming air is required.

Write for Descriptive Literature and Drawings available now on Kewaunee No. 3600—"The Fume Hood of the Future"

Kewaunee Mfg. Co.
C. G. Campbell, President
5069 S. Center Street Adrian, Michigan
Representatives in Principal Cities

The STANDARD *of Comparison*

TOPS...
for uniform quality, safety, and performance

FRANKLIN RESEARCH CO.
5104 LANCASTER AVENUE • PHILADELPHIA 31, PA.
A full line of maintenance materials

SIX REASONS WHY YOU SHOULD CHOOSE

Adlake Aluminum Windows

1. NO MAINTENANCE COST!
Adlake Windows need no painting, no maintenance other than routine washing.

2. MINIMUM AIR INFILTRATION!
A unique combination of non-metallic weatherstripping and patented serrated guides assures maximum weathertightness.

3. FINGER-TIP CONTROL!
You can raise and lower an Adlake Window with one finger—millions of times—each operation as smooth and fast as the one before.

4. NO WARP, ROT, RATTLE,
stick or swell, *ever*, with weather-defying Adlake Windows!

5. EASY INSTALLATION!
You put Adlake Windows into *completed masonry openings*. It's so easy to do that a perfect job is assured if the simple instructions are carried out.

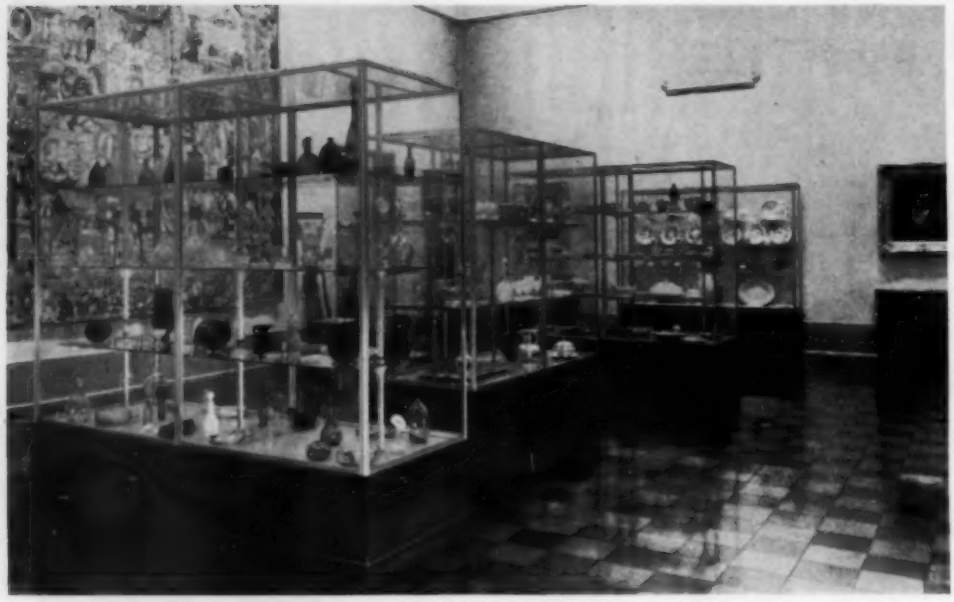
6. STURDY, LUSTROUS ALUMINUM
construction makes Adlake Windows the most beautiful windows on the market today. And their beauty *lasts!*

IF YOU PLAN to build or remodel, why not drop us a post card today for complete data? Address: 1118 N. Michigan, Elkhart, Indiana. No obligation, of course.

THE
Adams & Westlake
COMPANY
Established 1857
ELKHART, INDIANA • New York • Chicago

Adlake TRADE MARK

In a Class by Themselves
MICHAELS "Time-Tight" Cases



Michaels exhibit cases are used extensively by colleges and universities. They are designed for beauty as well as utility, and built of the finest materials obtainable. "Time-Tight" cases are available in a wide range of standard sizes and styles, or will be built to meet your specifications. Cases are theftproof, dustproof, and possess many outstanding constructional features. Write for literature containing complete information.

MUSEUM CASE DIVISION OF **The MICHAELS ART BRONZE CO., Inc., Covington, Kentucky**

Manufacturers since 1870 of many products in Bronze, Aluminum and other metals

as much a part of the wood as if it grew up with

PENETRATING SEAL-O-SAN adds years to the life of wood floors. It goes deep into the wood fibre, filling every cell with a tough, wear-resistant seal. It seals cracks too. This deeper penetration gives the floor greater "surface depth", so that it uniformly resists the punishment of heavy foot traffic. Its use today in thousands of the nation's schools testifies to its excellence. Write today for interesting Penetrating Seal-O-San folder.

HUNTINGTON

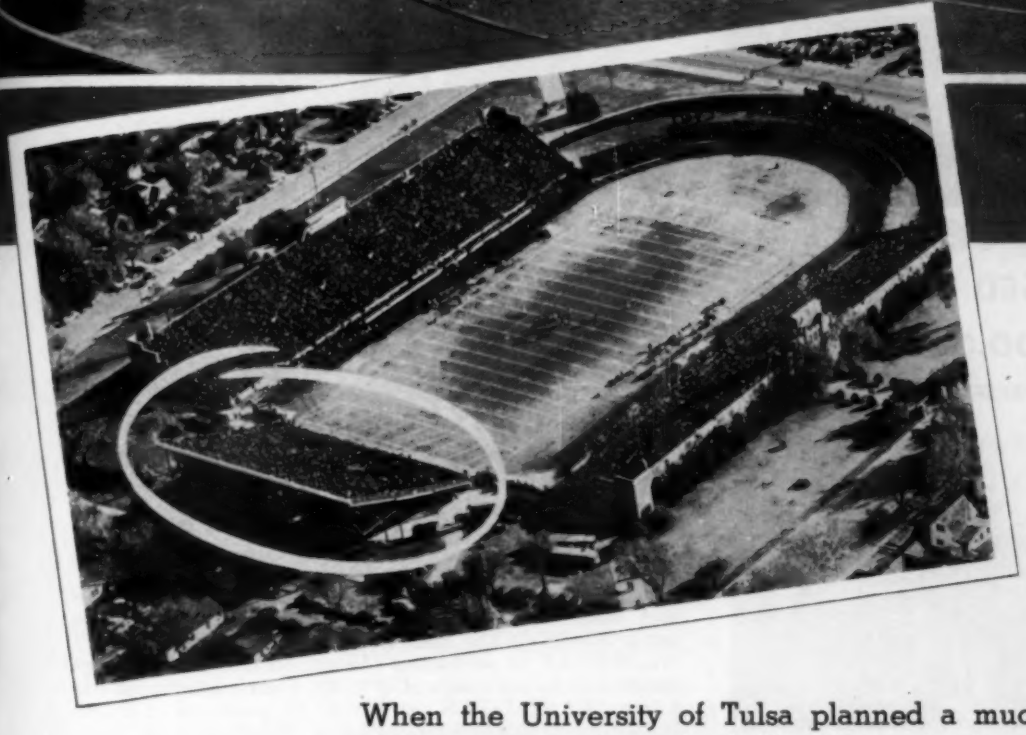
HUNTINGTON LABORATORIES, INC.
Huntington, Indiana
Toronto

BEAUTIFIES AS IT PROTECTS

UNIVERSITY OF TULSA ADDS 5,000 SEATS TO STADIUM

WITH A **PITTSBURGH • DES MOINES**

Steel Deck GRANDSTAND



Write for full information on P-DM Steel Deck Grandstands meeting your specific needs—without obligation of any kind.

When the University of Tulsa planned a much-needed expansion of seating capacity for its football stadium, this large Pittsburgh-Des Moines *Steel Deck* Grandstand was selected.

Seating 5,000 persons in safety and comfort, the new Stand typifies the advantages of P-DM unitized steel construction—for protection, appearance, adaptability, permanence, and economy. *Let us discuss your coming mass-seating requirements.*

PITTSBURGH • DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH	3458 Neville Island	DES MOINES	959 Tuttle St.
NEW YORK	Room 944, 270 Broadway	DALLAS	1263 Praetorian Bldg.
CHICAGO	1262 First National Bank Bldg.	SEATTLE	966 Lane Street
	SANTA CLARA, CAL.		665 Alviso Road

No. 2077
Captain's
Chair

For
Dormitory
Dining Hall
Student Lounge
Reception Room
Library

Durable and Smart

FURNITURE

Recent American Chair furniture installations include University of Wisconsin, Indiana University, Butler University, University of Alabama and University of Mississippi.

For prices and complete information, see your dealer or write Dept. C.

AMERICAN
CHAIR COMPANY
MANUFACTURERS
SHEBOYGAN, WISCONSIN

IDEAL heavy duty POWER MOWERS

IDEAL Power Mowers are designed to be true time savers—not time wasters. You can trust IDEAL heavy duty models for real economy in lawn care. From the big, heavy, 5 H.P. riding type "Caretaker" down to the smaller 1.5 H.P. walking type "New Victor", the entire IDEAL line is characterized by ruggedness, efficiency and mechanical reliability.

See your IDEAL dealer for information on models to suit your needs. Or write for catalogs.

IDEAL
POWER LAWN MOWER CO.
Dept. CB-50, Springfield, Mass.

SMOOTH CEILINGS SYSTEM

...USED IN NEW $2,500,000 DORMITORY
UNIVERSITY OF MINNESOTA

SPECIAL STEEL Grillages provide greater advantages

- LESS CONCRETE FORM WORK
- LOWERED STORY HEIGHTS
- EASY EQUIPMENT INSTALLATION

GRILLAGES illustrated at left, replace usual flared column caps . . . eliminate beams or drop panels which permits simplified interior finishing as well as easy equipment installation. Resulting Smooth Flat Ceilings require less concrete form work which aids in reducing construction time and costs.

CHECK and discover how you can save!

WRITE FOR BULLETINS NOW!

SMOOTH CEILINGS SYSTEM
Metropolitan Life Bldg., Dept. G Minneapolis, Minn.

Here's why
'SEXAUER' "EASY-TITES"

Outlast Ordinary Faucet Washers 6 to 1

You can stop costly faucet leaks that boost water, fuel and labor costs and ruin expensive fixtures. Insist on pat'd "EASY-TITE" Faucet Washers—made of DUPONT NEOPRENE to withstand absorption and extreme high temperatures (upwards of 300° F). Fabric reinforced like a tire, "EASY-TITES" can't split or mush out of shape. Outlasting ordinary washers 6-to-1, "EASY-TITES" have cut faucet repairs to a minimum and brought maintenance costs sharply down in plants, hospitals, schools, hotels and institutions everywhere.

FREE! VALUABLE 112-PAGE CATALOG

Lists over 2,300 'SEXAUER' Triple Wear Replacement Parts and pat'd Precision Tools as advertised in the SATURDAY EVENING POST. Standard with leading maintenance engineers everywhere. Send a postcard for your free copy TODAY.

J. A. SEXAUER MFG. CO., INC.
2503-05 Third Ave., Dept. U-9, New York 51, N. Y.

SEXAUER
World's leading specialists in plumbing and heating maintenance.

Carnegie Hall, Pennsylvania State College, State College, Pennsylvania

...and it will be the RIGHT SIZE 30 years from now

Naturally this classroom is the right size for today's requirements. And because Hauserman *Movable* Steel Interiors have been used, it will be the right size 30, 40, or 50 years from now, regardless of teaching methods.

Hauserman *Movable* Steel Interiors arrive at your school in convenient *packaged* units, ready-to-install. They are quickly erected and easily moved by trained Hauserman erection crews whenever new floor layouts will improve teaching facilities. All insulation, wiring accommodations and accessories are built in.

A Hauserman representative will be glad to discuss these and all the other advantages of Hauserman *Movable* Steel Interiors with you, your architect and your builder. Just write or call the Hauserman office or representative nearby or contact *The E. F. Hauserman Company, 6950 Grant Avenue, Cleveland 5, Ohio.* Our new 60 page catalog is yours for the asking.

Organized for Service Nationally Since 1913

HAUSERMAN
Movable Steel Interiors

Partitions • Wainscot
Railings • Acoustical Ceilings
Complete Accessories

Now available!

VUL-COT

TRADE MARK

Wastebaskets

famous for good looks... durability Made of hard vulcanized fibre, Vul-Cots give a lifetime of service. They are attractive, light weight, noiseless, do not crack, splinter, dent, rust or corrode . . . do not mar floors or fixtures. Vul-Cots greatly reduce waste handling and maintenance costs. Write today for catalog sheet giving sizes, and prices.

Practical Styles: *Round Taper* (Nos. 2 & 3) popular for office and school room use; *Square Taper* (No. 5) a distinctive style ideal for executive offices; *Round Straight* (Nos. 9 & 10) perfect for washrooms, basements, stores, mail rooms, factories. All styles are available in two standard colors: maroon-brown and olive-green.

New! Improved!

Greatly improved manufacturing process makes possible new bonded seam construction. This adds strength, improves appearance, assures cleaner waste handling—your assurance of an even finer Vul-Cot!

For Sale by Stationers and School Supply Houses Everywhere

Guarantee This Vul-Cot waste basket with ordinary usage should last a lifetime. It is absolutely guaranteed as to material and workmanship for a period of five years from date of purchase, when used only as a waste basket. If during that time in such service it proves defective, return and a new basket will be supplied.

NATIONAL VULCANIZED FIBRE CO.
Wilmington, Delaware, U. S. A.

NATIONAL VULCANIZED FIBRE COMPANY
WILMINGTON • DELAWARE

How Do YOUR FLOORS RATE?

Hillyard's QUIZ on SCHOOL FLOOR MAINTENANCE

Here are 4 questions often asked our expert floor "Maintaineers". Check through this quiz . . . see if your floors are being maintained properly.

1. What should I use to clean traffic marks, dirt and grime from floors, walls, woodwork . . . safely and thoroughly?

ANSWER: Hillyard Super Shine-All—An all-purpose, neutral chemical cleaner. Cleans, protects in one easy application. No rinsing. Underwriters' Approved.

2. What is your best anti-slip treatment for protecting school floors from heavy traffic?

ANSWER: Hillyard Hilco-Lustre—A slip-resistant floor renewer. Leaves hard, glossy finish. Not a wax, but self-polishing top coat. Approved by U/L as "Anti-Slip."

3. I need a tough, anti-slip finish for my gym floor. What is universally used?

ANSWER: Hillyard Star Gym Finish—Created especially for gyms. Does not darken floor. No glare. Non-skid footing. Choice of 15,000 gyms. Makes excellent dancing surface.

4. What is the best product for removing old varnish or paint from desks and floors without fire hazard?

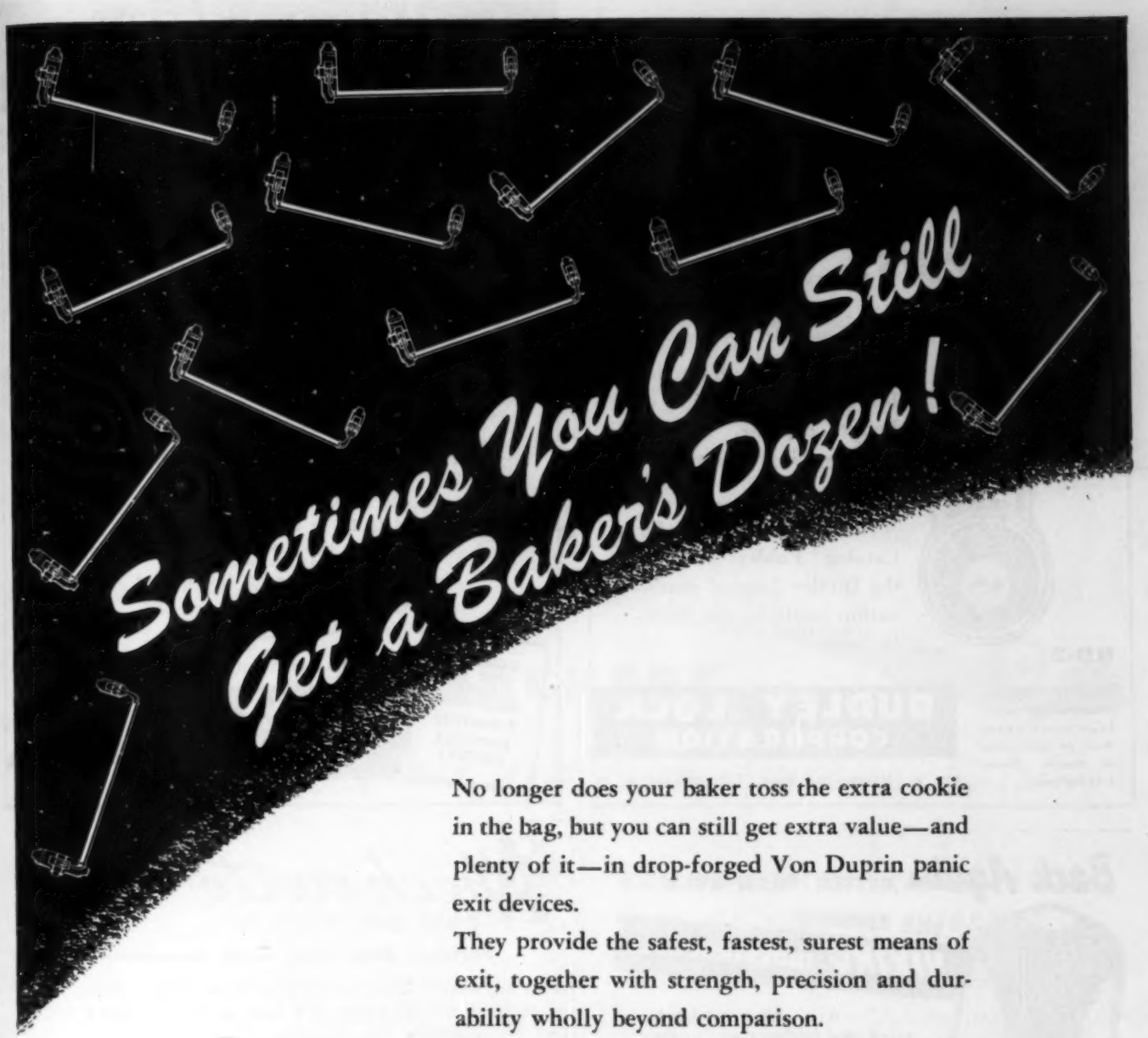
ANSWER: Hillyard Kurl-Off—Zips off old paint and varnish with ease. Non-inflammable . . . Does not raise grain or darken surface . . . absolutely safe for any job.

Hillyard PRODUCTS... ALWAYS THE CORRECT ANSWER To YOUR SCHOOL FLOOR PROBLEMS

HANDLE WITH HILLYARD CARE!

Call, write or wire for the name of your nearest Hillyard "Maintaineer"

St. Joseph, Missouri, U.S.A.



No longer does your baker toss the extra cookie in the bag, but you can still get extra value—and plenty of it—in drop-forged Von Duprin panic exit devices.

They provide the safest, fastest, surest means of exit, together with strength, precision and durability wholly beyond comparison.

Yet, strangely enough, when you install drop-forged Von Duprins, you get all this top quality and top performance at the lowest cost per year. Freedom from maintenance and repair expense soon offsets the original price of the devices, and from then on the over-all annual cost becomes lower each year throughout the long life of the building.

That is, we believe, really getting yourself an old-fashioned Baker's Dozen.

Von Duprin

VON DUPRIN DIVISION, VONNEGUT HARDWARE CO., INDIANAPOLIS 9, IND.

No more locker problems!

Solve your school's locker problems once and for all with dependable Dudley Locks.

Get schoolwide protection for your school with no budget expense. Use the Dudley Self-Financing Plan.

Write for details and for Catalog Folder showing the Dudley Line of combination padlocks and built-in locks.

RD-2

Rotating dial combination in stainless steel case. Built to take years of student abuse. Self-locking.

DUDLEY LOCK CORPORATION

570 W. Monroe St., Dept. 122, Chicago 6, Ill.

Hasco ALL STEEL GENERAL UTILITY BED

WITH *Artline* TUBULAR ENDS

Ends fabricated of 1¾" heavy gauge Artline tubing with four fillers and double ribbed cross rod firmly butted and welded to insure rigidity.

Equipped with high riser twisted link galvanized fabric spring. Head height 36". Foot height 28". Mounted on 2" casters. Inside measurement 3ft. x 75". Spring height 17".

Finished in Brown (Walnut) enamel.

Ideal for Sleeping Accommodations such as Dormitory, Internes and Nurses Quarters.

No. MA 1201 **$16.75 Each**

$16.25 Ea. in Lots of 12 or more

White or Ivory or any other Flat Enamel Finish $1.00 per bed additional

For Wood Graining add $2.00 per bed

F.O.B. Utica, N. Y. or St. Louis, Mo.

COMPLETE LINE OF SLEEP EQUIPMENT FURNITURE DIETITIAN SUPPLIES

SERVING INSTITUTIONS FOR OVER 25 YEARS

HAROLD SUPPLY CORPORATION

100 Fifth Avenue New York 11, N. Y.

29

Back Again BETTER THAN EVER

THE FAMOUS **VIKING** INDESTRUCTIBLE

● It's the original patented steel folding chair . . . the chair that *users* named INDESTRUCTIBLE! Thousands of these rugged — yet comfortable — chairs are still like new after years of use and abuse! The all-steel VIKING INDESTRUCTIBLE No. 200 Steel Folding Chair is available in either Java Brown or Dawn Gray. Clamps available for grouping the chairs in sections. Order now!

WRITE for prices, literature and name of nearest dealer.

5 YEAR GUARANTEE

Only chair made with full back rest — greater strength, comfort, safety.

Heavy channel steel frame and heavy gauge furniture steel seat and back.

Opens or closes in a second, with one hand. Can't bind or stick. Folds flat to 1⅛" thin — stacks 75 or 100 high without tipping.

Generous-size hand grips; easy to carry 3 or 4 chairs in one hand.

MAPLE CITY STAMPING CO.

712 PARK AVE., PEORIA, ILLINOIS

QUALITY PRODUCED VIKING SINCE 1904

Checkerette

Portable Steel Coat Rack *Accommodates 32*

Goes anywhere. Is set up in a minute without bolts, units or tools. Holds 32 coats and hats on double hooks which can be instantly replaced with coat hangers. Stores like folding chair when not in use. Ideal for lunch rooms, class rooms, for holding laboratory or shop clothes, drying athletic gear, storing vestment, band uniforms, etc. (When shelf-bar is assembled at top position it takes longest garment bags.) Rigid in use. Welded steel, baked enamel finish.

Write for Circular CT 16

VOGEL-PETERSON CO.

624 So. Michigan Ave., Chicago 5, Ill.

NEW IDEA IN CRACKER SERVICE!

PREMIUM SALTINE CRACKERS*

in moistureproof cellophane packets....

CUT FOOD COST... BY CUTTING WASTE!

You get a real bonus in the new cellophane-wrapped PREMIUM Saltine Crackers! There is *no waste* caused by sogginess or staleness . . . *no waste* of "bottom-of-the-box" pieces and crumbs . . . *no waste of time in handling unused crackers and trying to keep them fresh.* Every PREMIUM Saltine packet you buy earns a profit!

BUILD PROFITS... BY SERVING QUALITY!

Your patrons know that PREMIUM Saltine Crackers in cellophane packets are *always* fresh, crisp and whole. They like the clean eye appeal of the package. And they'll enjoy having salty, flaky PREMIUM Saltine Crackers with soup and other dishes—or as a substitute for bread and rolls—even though it's a money-saver for you!

**Known as SNOWFLAKE CRACKERS in the Pacific states*

SEND FOR THIS FREE BOOKLET packed with ideas on how to increase sales and cut food cost with NABISCO products, including: *PREMIUM Saltine Crackers • TRISCUIT Wafers • DANDY OYSTER Crackers • RITZ Crackers • OREO Creme Sandwich.*

National Biscuit Company, 449 West 14th St., New York, N. Y.
Please send your booklet "Around the clock with NABISCO."

Name..... Title.....

Organization.....

Address.....

City..... State.....

A PRODUCT OF NABISCO *NATIONAL BISCUIT COMPANY*

®

NOW

A 3-COAT FLOOR FINISHING JOB IN 24 HOURS

with the NEW

PYRA-SEAL

Another Vestal first! Vestal PYRA-SEAL long recognized as the outstanding floor seal on the market is now *better than ever before.* The NEW PYRA-SEAL offers you NEW advantages in floor beauty . . . floor protection . . . floor maintenance economy. Only the NEW PYRA-SEAL has ALL of these advantages:

* The NEW PYRA-SEAL dries to touch in LESS than 2 hours. Can be steel wooled and given another coat after 4 to 5 hours drying time.

◆ **QUICKER DRYING**—Dries in half the time . . . your floors are back in service sooner.

◆ **60% to 80% MORE WEAR**—proved by tests with Taber Abrasers (the official precision instrument to determine wear and abrasion resistance).

◆ **HIGHER GLOSS** yet maintains celebrated slip resistant safety.

◆ **EASIER TO APPLY AND MAINTAIN**—No lap marks; fewer rubber marks; does not rubber burn. Can be scrubbed without damage. A stronger, tougher, longer-wearing finish.

Approved and Recommended by
Maple Flooring Manufacturers Assn.
National Oak Flooring Manufacturers Assn.
Leading Architects

Write today for detailed information.

VESTAL INC. ST. LOUIS • NEW YORK

A Wayne Stand IS A Safe INVESTMENT

The Wayne installation, above, shows the Standard Rolling Gymstand at left and the Movable units at extreme right.

WAYNE STANDS not only are designed and constructed to withstand years of long, hard service—they offer maximum utility as well.

For example, the Wayne Type "H" Steel, Sectional Grandstand, up to and including six rows, can be moved bodily to varying locations as seating requirements change. And, the Wayne Movable Rolling Gymstand can be closed and moved by truck or dolly to another part of the building. Both the Standard and Movable Gymstand save many feet of floor space by rolling out of the way when not in use. That's why a Wayne Stand offers a Safe Investment.

And, a Wayne Stand is also an Investment in Safety. For, all Wayne Stands, large or small, conform to exacting requirements of design and construction.

If you have a seating problem, contact us. Our engineers are ready to help you—our catalog is available upon request.

"Wayne Stands WAYNE GRANDSTANDS *for Safety"*

WAYNE IRON WORKS

REPRESENTATIVES IN 42 CITIES

146 NORTH PEMBROKE AVE. • WAYNE, PENNA.

New Low Cost Tape Recorder Offers These Great Advantages

Model 730

ONLY
$94.50

Complete with microphone, take-up reel, radio-phonograph cord, hand crank, amplifier and speaker.

The New
AMPRO
Combination
MAGNETIC TAPE RECORDER AND PLAYBACK UNIT

- **LOWEST FIRST COST!** Compare the record-breaking low price of this new Ampro Recorder with *any* other on the market today. *Priced at only $94.50, complete* . . . it compares favorably with units selling for much more money!
- **LIGHTEST, MOST COMPACT!** The basically new design of this new recorder reduces bulk and weight to *almost ½ of conventional models!* It weighs only 15 pounds and measures only 8⅝" x 8" x 12"
- **GREATEST OPERATING ECONOMY!** Because of its slow recording speed and its "dual track" recording system, this new Ampro unit will record a full 2 hour program on one 7" reel! Almost twice as much recorded material on each reel of tape as compared to conventional recorders.
- **SIMPLEST TO OPERATE!** A child can operate this new tape recorder . . . it is that easy! Operation has been reduced to its simplest terms, uncluttered by costly "gadgets" that merely confuse the operator.
- **Designed, built and guaranteed by AMPRO** . . . a name famous for fine craftsmanship in the design and manufacture of precision cine and sound equipment for more than 20 years.

*Trade Mark Reg. U. S. Pat. Off.

RECORDS 2 FULL HOURS ON ONE STANDARD 7" REEL . . . WEIGHS ONLY 15 POUNDS!

Modern schools will use this new low cost tape recorder on every grade level and in a great variety of ways. It is ideal for helping in the teaching of foreign languages . . . aiding in speech correction . . . musical instruction . . . commentary with slides and filmstrips . . . dramatic classes . . . and forum programs and many other classroom duties. Exclusive features include: *Slow recording speed* which puts almost twice as much recorded material on each reel; *Fast Forward Skip* lets you skip to the middle or end of a reel to hear certain recorded sequences; an *Audio-monitoring* system enables you to hear what is being recorded while it is being recorded . . . plus a host of other important features. Its simplified operation and low operating cost make it a perfect teaching tool. Best of all, its low first cost puts it within range of even the most modest school budgets!

Mail Coupon Today

for illustrated folder giving complete details and specifications on this new low cost Ampro Tape Recorder.

AMPRO
8 mm. Silent • 16 mm. Silent
16 mm. Sound-on-film • Slide Projectors
16 mm Arc Projectors

A General Precision Equipment Corporation Subsidiary

AMPRO CORPORATION CUB 150
2835 N. Western Ave., Chicago 18, Illinois

Gentlemen:

Please send me full details on the new low cost, light weight Ampro Tape Recorder for classroom use.

Name _____

Address _____

City _____ Zone _____ State _____

GRADE "A" For Nourishment!

Here's "Main Dish" nourishment and taste appeal, combined in crisp, delicious Kellogg's Corn Flakes.

No wonder America's favorite ready-to-eat cereal rates "Number One" on campus!

Back home, too, undergraduates have eaten and enjoyed more Kellogg's than any other ready-to-eat cereals. They like them. They welcome them. That's why Kellogg's Cereals are far more popular than any other brand.

Order the individual size and see how the students go for a package of their own.

P. S. to Dietitians — Every bowlful of Kellogg's Corn Flakes contains essential vitamins, vital minerals, nourishment, food energy and flavor.

KELLOGG'S CORN FLAKES • RICE KRISPIES • PEP • KELLOGG'S 40% BRAN FLAKES • KRUMBLES • KELLOGG'S SHREDDED WHEAT • KELLOGG'S RAISIN BRAN FLAKES • CORN-SOYA • RICE FLAKES • ALL-BRAN

MOST STUDENTS LIKE Kellogg's MOST

THE GREATEST NAME IN CEREALS

Battle Creek and Omaha

Floor of Northern Hard Maple, 80 x 100 feet, a dual-purpose innovation which combines gymnasium and roller-skating rink, at Archbishop Stepinac High School, White Plains, N. Y.—an interesting development in supervised recreation. Eggers & Higgins, Architects, New York, N. Y.

Reflecting

Good Judgment

in the bright beauty, endurance and economy of

NORTHERN HARD MAPLE

Formed to conserve the natural supply and to raise and stabilize the mill standards of genuine Northern Hard Maple Flooring, the **MFMA** has, naturally, watched and recorded for many years the performance of the thousands of fine Maple Floors in American school and college classrooms, corridors, gymnasiums and offices.

MFMA records *prove* that true economy and thorough satisfaction are assured by a well-laid, properly-finished floor of Northern Hard Maple. *It reflects good judgment.* Northern Hard Maple is close-grained, tough, strong, rigid. It is truly resilient. It is amazingly resistant to denting by pointed impact or pressure, and to abrasion by scuffing. It is non-splintering. It is readily stained to many varied tones, and it is brightly beautiful without any stain.

Second Grade, Second-and-Better Grade and Third Grade Northern Hard Maple, **MFMA**-marked, provide very appreciable economies, too, at no sacrifice of performance characteristics. Ask your school architect to show and explain these simple **MFMA** grading specifications to you.

For full data, see Sweet's, Arch., 13/g/6—Eng., 4/5/22. Write for latest listing of **MFMA**-approved finishing products and processes. Address—

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Room Dept. D—46 Washington Boulevard
Oshkosh, Wisconsin

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH

More SEATING FOR PAY CROWDS—
More FLOOR SPACE FOR PRACTICE

A UNIVERSAL ROLL-A-WAY GYMNASIUM STAND

With Universal Roll-A-Way stands capacity crowds are seated comfortably and safely. Open, above stand requires 12 feet of floor space. Rolled back it needs only 3' 5¼" — leaving spacious areas for calesthenics, practice, etc. They are easy to open, easy to roll back — and they're fully covered when closed.

A UNIVERSAL FOLD-A-WAY GYMNASIUM STAND

Designed for safety, suitability and space saving — Universal Fold-A-Way stands are the ultimate in folding type seating. Built to fit individual needs in a number of sizes — compact and sturdy. The 8 row stand (above) covers 13' 10" open and only 3' 1" closed. Chair storage space is provided beneath stands.

WRITE US ABOUT OUR TWO LEVEL FLOOR SPACE SAVING PLAN

Universal BLEACHER COMPANY

CHAMPAIGN — *Bleacher Experts for Over 30 Years* — ILLINOIS

606 SOUTH NEIL STREET

WANT ADVERTISEMENTS

The rates for want advertisements are: 10 cents a word; minimum charge, $2.50.

Address replies to COLLEGE AND UNIVERSITY BUSINESS, 919 N. Michigan Avenue, Chicago 11, Ill.

POSITIONS WANTED

Treasurer and Business Manager—15 years as treasurer and business manager in university; experienced in budgetary control, accounting, preparation of budgets and financial reports, office management, internal audits, purchasing, operating of auxiliary enterprises; B.S. Degree; married. Write Box CW 83, COLLEGE AND UNIVERSITY BUSINESS.

Business Officer—6 years successful experience with small midwestern college as treasurer and business manager; personable and capable of assuming responsibility; age 42, married, one son; excellent recommendations; desires position with broader outlook. Write Box CW 84, COLLEGE AND UNIVERSITY BUSINESS.

Superintendent of Buildings, Grounds and Farm—With many years practical experience; competent to maintain, operate and expand a diversified physical plant. Write Box CW 82, COLLEGE AND UNIVERSITY BUSINESS.

POSITIONS OPEN

Dining Hall Director—To take responsible charge of a large dining hall service; applicants must be able to organize work, supervise and train personnel; must be able to plan menus, purchase foods and equipment, and maintain proper control records and must have a thorough knowledge of food values and principles and practices of food production; all replies must contain name, address, and complete resumé of experience and training. Send to Personnel Department, State Capitol, Hartford, Connecticut.

Food Production Manager—Young woman for cafeteria of middle western university in urban area; knowledge of quantity cooking necessary, but not required to handle purchasing function or menu writing; will be responsible for personnel supervision; furnish letter with complete data as to experience, present availability and salary needs. Write Box CO 27, COLLEGE AND UNIVERSITY BUSINESS.

Consulting Staff Associate—To analyze business management problems of eleemosynary institutions such as schools, colleges and hospitals; must be college graduate in engineering or business with heavy industrial engineering or business management experience and contacts in institutional field; considerable travel required; New York City area; salary open; send complete resumé of experience, earnings, age and education. Write Box CO 28, COLLEGE AND UNIVERSITY BUSINESS.

LOOKING FOR SOMEONE?

Someone to fill a vacancy in your staff—a Business Manager—Superintendent of Buildings and Grounds —Purchasing Agent— Director of Food Service and Dormitories?

Or maybe you are thinking about making a change. If so, consider placing a "Want Advertisement" in the next issue of College and University Business.

WESTON
High-Frequency Analyzer

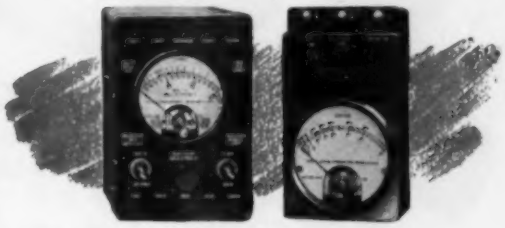
MODEL 769

Provides:

1. A stable, probe type, Vacuum Tube Voltmeter.
2. A high impedance electronic Volt-Ohmmeter using 115 volt, 60 cycle power.
3. A conventional Volt-Ohm-Milliammeter with self-contained power source.

Ideal for practically all electronic measurements up to 300 megacycles. Especially designed for AM, FM, and Television requirements. Completely independent of line voltage variations between 105 and 130 volts. Full details in bulletin R-31-B.

COMPACT TEST EQUIPMENT FOR CLASSROOM USE



Volt-Ohm-Milliammeter (Model 697)—Contains carefully selected group of ranges to cover a wide variety of electrical measurements. Compact, light weight, and low in cost.

Ohmmeters (Model 689)—Available in two, double range instruments . . . 0-10 and 0-1000 ohms full scale; and 0-5000 and 50,000 ohms full scale. Compact, rugged and low in cost.

WESTON *Instruments*

Write for Bulletin No. E5A describing the full line of WESTON Test Equipment . . . Weston Electrical Instrument Corp., 704 Frelinghuysen Avenue, Newark 5, N. J.

Candy is Food

Additional Revenue for Your School Without Investment.

Univendor *Candy Vendors*

Candy is a healthful food—and can be conveniently available to your students with UNIVENDOR Candy Vendors. UNIVENDORS will be installed and stocked with the finest brand candies, by a UNIVENDOR operator in your area . . . at no cost to your school. There is nothing to buy. What's more . . . the earnings will be shared with your school—for use in supporting school activities . . . purchasing equipment or as you designate. UNIVENDORS are fully automatic—offer a wide selection and are available in a variety of models. For complete details please mail coupon below.

328 GALE

Stoner Mfg. Corp. AURORA, ILLINOIS

Gentlemen: We are interested in knowing more about UNIVENDOR Candy Vendors. Please provide complete details without obligation.

YOUR NAME_____

TITLE_____

SCHOOL_____

ADDRESS_____

HERRICK

Stainless Steel REFRIGERATORS

PROVED BY PERFORMANCE

Year after year, users of HERRICK "plus-refrigerators" continue to praise the dependable, trouble-free operation of these superb units. They praise, too, the many advantages of HERRICK *complete food conditioning.* This splendid record is a result of the HERRICK 58 year-old policy "Use the Best to build the Best".

HERRICK "plus-refrigerators" will serve *you* as they have these thousands of others. HERRICK *complete food conditioning* will save *you* money by preventing food spoilage . . . by reducing food shrinkage . . . by keeping foods always fresh, always delicious. Write us for the name of your nearest supplier of HERRICK equipment.

HERRICK REFRIGERATOR CO. • WATERLOO, IOWA
DEPT. C COMMERCIAL REFRIGERATION DIVISION

HERRICK

The Aristocrat of Refrigerators

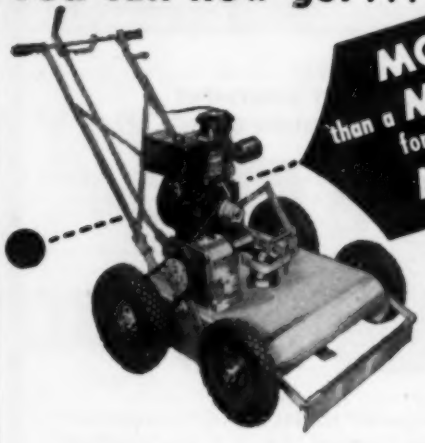
WALRUS

MANUFACTURING COMPANY
DECATUR ILLINOIS

MANUFACTURERS OF
FURNITURE FOR
INDUSTRIAL, CLINICAL AND RESEARCH LABORATORY
LIBRARY AND HOME ECONOMICS
PHYSICS, BIOLOGY, CHEMISTRY, PATHOLOGY

ELECTRICITY . . . DOMESTIC SCIENCE
DRAFTING ROOM . . . MANUAL TRAINING
KINDERGARTEN . . . TRADE SHOPS
SODA FOUNTAINS, SALAD, SANDWICH, AND
STEAM TABLE UNITS
HEAVY DUTY KITCHEN EQUIPMENT
FIXTURES OF EVERY DESCRIPTION

You can now get . . .



MORE than a MOWER for your MONEY

PEARCE

"Air-Lift"

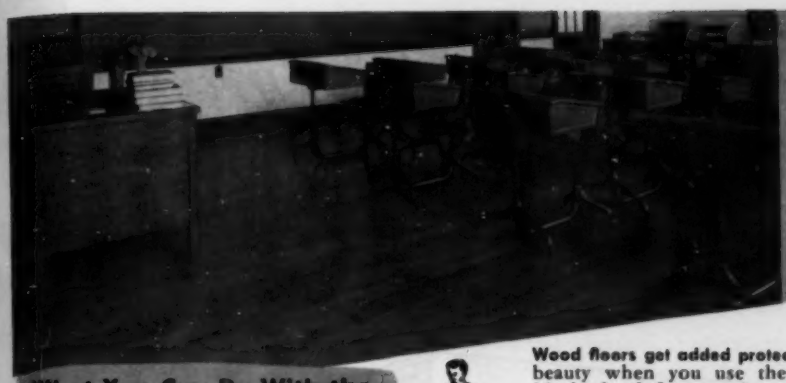
ROTARY MOWER

- Cuts grass of any height
- Lifts "down" grass into cutting zone
- Cuts cleanly and uniformly
- Self propelled, ruggedly built for low cost maintenance

The Pearce "Air Lift" is one of the original rotary type mowers . . . service proved over a period of 12 years. It has all of the desirable features you expect in this type of mower and is of exceptionally rugged construction to withstand continuous, heavy-duty service. Both mowing ability and serviceability are second to none! Available in 25-inch and 31-inch cutting widths as well as 18-inch cut for trimming in confined areas.

FREE BULLETIN — Write for it today. Contains detailed mechanical specifications. Compare, feature for feature, with any other power mower and you'll agree that here is the answer to low-cost lawn maintenance. Write Dept. CU-1.

THE PEARCE CORPORATION 144 E. HIGHLAND AVE MILWAUKEE 2, WIS.



Your Floors Will Stand the Test When Maintained *the* MULTI-CLEAN® *Way*

Multi-Clean Floor Protection Goes Below the Surface!

What You Can Do With the MULTI-CLEAN METHOD

ROTARY FLOOR MACHINE for sanding, scrubbing, buffing, troweling, grinding, waxing and polishing all types of floor surfaces.

WET-DRY VACUUM picks up water after scrubbing or from flooded areas. Vacuum has attachments for cleaning floors, ventilator pipes, radiators, venetian blinds, etc.

COMPLETE LINE OF FINISHES to protect and enhance the appearance of wood, terrazzo, linoleum, concrete, asphalt and rubber tile floors.

BETTER FLOOR MAINTENANCE at lower cost with the Multi-Clean Method.

Wood floors get added protection and new beauty when you use the Multi-Clean Method of floor maintenance. Multi-Clean's Floor Preserver penetrates deeply into the wood pores, safeguarding the floor against wear, moisture and dirt. By using the all-purpose Multi-Clean Floor Machine for buffing in a finish coat, the surface is sealed, assuring you a bright and easy-to-keep-clean floor.

Lasting floor beauty and protection for all your floors is easy with Multi-Clean. Terrazzo, quarry tile, asphalt, cement, rubber composition or any other type will withstand the most rigorous traffic and still keep a fresh new look with this method. Periodic use of Multi-Clean floor cleaners and finishes and easy-to-use Multi-Clean machines offer efficient, economical, time-saving floor maintenance.

MULTI-CLEAN PRODUCTS, INC.

MULTI-CLEAN PRODUCTS, INC.
2277 Ford Parkway, Dept. 228
St. Paul 1, Minn.

Gentlemen: Please send me more information about the Multi-Clean Method for cleaning, beautifying and preserving floors.

Name_____

Address_____

City_____ Zone____ State_____

Permanent Floor Finishes • Industrial Vacuums • Rug and Floor Machines • Custom Cleaning Chemicals

30 Row Portable Steel Grandstand for Alabama University Set Up on 2 x 10 Sleepers.

Are the spectators in your grandstands safe? Be sure—with steel stands you can be. Williams *Steel* Grandstands! Their construction incorporates the famous Williams 4-to-1 factor of safety which exceeds all code requirements and cuts insurance costs "to the bone."

Our 35 years' experience covers the manufacture and erection of steel double deck and canopied stadiums—seating up to 20,000—down to the smallest portable grandstand for outdoor and indoor use. Send us dimensions and space to be filled for prompt quotation.

WILLIAMS *Steel* GRANDSTANDS

PORTABLE • PERMANENT INDOOR • OUTDOOR FOLDING • ROLLING

steel's strength • WILLIAMS' integrity

FILL IN . . . TEAR OUT **MAIL!**

WILLIAMS IRON WORKS, INC.
450 East 102nd St., New York 29, N. Y.

Gentlemen: Send me your new FREE grandstand catalog.

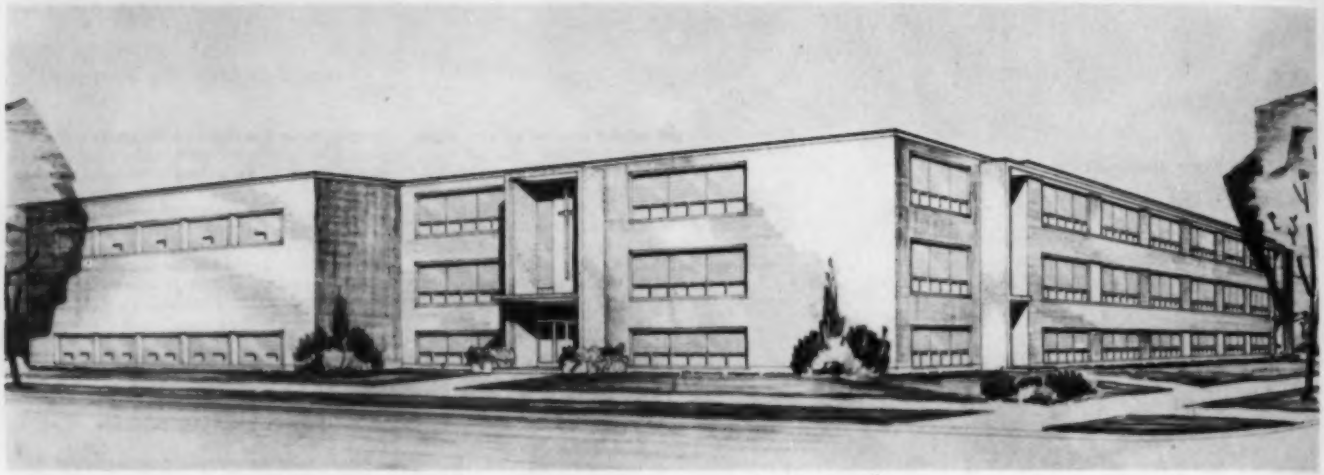
My name_____

School_____

Address_____

City_____ State_____

Another Lawson Associates Success



BISHOP SHANLEY CENTRAL CATHOLIC HIGH SCHOOL, FARGO, NORTH DAKOTA

When B. H. LAWSON ASSOCIATES made surveys for a fund-raising campaign for this Central Catholic High School Building Fund, prospective contributors numbered about 2,500. A goal of $400,000 was set, to finance construction of the urgently needed initial unit, comprising classrooms, gymnasium, and cafeteria.

The campaign closed December 17, with results that need no comment:

Total Number of Prospective Contributors	**2,500**
Total Number of Gifts Received	**2,345**
Campaign Objective	**$400,000.00**
Total Contributions to December 17, 1949	**$403,350.00**
Average Contribution	**$173.21**

A campaign for Catholic Education normally gets its support almost entirely from interested Catholic families. In this campaign, non-Catholics in the community contributed more than 7 per cent. of the total.

A B. H. LAWSON ASSOCIATES campaign furnishes accurate and conservative surveys on which to base a campaign's expectancy. Its direction assures coverage of every potential channel of contributions. It leaves the community benevolently aware of the institution's services and needs.

If you have a fund-raising problem, why not investigate our services. Preliminary surveys and on-the-spot consultation are undertaken by this firm without obligation.

Write for our informative brochure, "Fund Raising," today.

Address Department B-1

B. H. LAWSON ASSOCIATES, INC.

307 SUNRISE HIGHWAY — ROCKVILLE CENTRE, NEW YORK

WHAT'S NEW

JANUARY 1950

Edited by Bessie Covert

TO HELP you get more information quickly on the new products described in this section, we have provided the postage paid card opposite page 80. Just circle the key numbers on the card which correspond with the numbers at the close of each descriptive item in which you are interested. COLLEGE and UNIVERSITY BUSINESS will send your requests to the manufacturers. If you wish other product information, just write us and we shall make every effort to supply it.

Folding Chair

The new No. 44 folding chair has Y-type tubular steel construction which evenly distributes the sitter's weight and makes overturning difficult. It folds easily and compactly by raising the front edge of the plywood seat which brings the legs together. The chair is designed for maximum comfort with the seat and back panel formed to fit the body scientifically. The chair has simple, practical lines, is light in weight and sturdily constructed for rugged handling and storage. It has no sharp edges or corners and is easy to clean. Metal parts are finished in baked enamel and the plywood seat is lacquered. Rubber feet prevent slipping. **American Seating Co., Dept. CUB, Grand Rapids, Mich. (Key No. 709)**

Acoustically-Treated Panels

Fenestra building panels are now available as a complete structural-acoustical unit. The acoustically-treated panels interlock into a flat ceiling as they are laid directly on the beams. Panel ends are welded to the supporting steel structure. The 2 inch sound-absorbing element is elevated from the face of the panels by a wire support. The unit thus gives an acoustical ceiling providing 75 per cent noise reduction which needs only a coat of paint for finishing.

Installed, the acoustically-treated panels are capable of carrying specified loads over design spans and provide a continuous flat surface to support roof insulation or a continuous flat sub-floor to work from that will take a minimum of concrete or other load distributor. The Structural Acoustical Package provides a time and money saving unit for all types of construction. **Detroit Steel Products Co., Dept. CUB, 2250 E. Grand Blvd., Detroit 11, Mich. (Key No. 710)**

Dishwashing Detergent

China, glass, silver, aluminum and plasticware are easily and effectively washed with Chat, a new liquid organic detergent containing Dry-A-Pon. Designed for use in mechanical dishwashing, Chat permits dishes and glassware to dry without water spots as Dry-A-Pon lowers surface tension of water, causing it to drain off in sheets instead of in droplets.

Chat mixes with water instantly and uniformly, has high wetting, dispersing and emulsifying powers, and eliminates hard water deposits on dishware and on washing machines. Only a small quantity is needed in the washing water for fast, clean drying, thus making it economical in use. It is available in 5 gallon cans and in 29 and 53 gallon drums. **Parker D. Perry Inc., Dept. CUB, 729 Boylston St., Boston 16, Mass. (Key No. 711)**

Freezers

A new 26 cubic foot freezer with 900 pounds of frozen storage capacity has recently been introduced by Frigidaire. Constructed of heavy gauge steel with welded seams, the new freezer is finished in glossy, white enamel inside and out and is insulated with fibrous glass on walls and bottom of the storage and freezing compartments. The reciprocating type refrigerating unit has wrap-around refrigerant coils which are fastened to the outside of the compartment walls. The freezing compartment has a special coiling arrangement to speed up freezing and the storage compartment is automatically maintained at constant low temperature.

An independently-powered alarm bell sounds when the cabinet temperature rises 5 or 10 degrees. The unit has removable divider racks, and is equipped with adjustable latches which may be padlocked. **Frigidaire Div., General Motors Corp., Dept. CUB, Dayton 1, Ohio. (Key No. 712)**

Daylight Viewer

The new, portable Kodak Daylight Projection Viewer can be set up anywhere on a desk or table and permits the viewing of football and other sport movies in daylight. The projection viewer is a device which holds a special 8 by 11¾ inch Kodak Daylight Screen with a mirror behind it. The image is projected onto the mirror, then reflected onto the Daylight Screen which gives a bright and brilliant picture, even in full daylight. Thus films can be studied without setting up a screen or darkening the room. The Viewer has several other features which will prove of value in studying sport films. **Eastman Kodak Co., Dept. CUB, Rochester 4, N. Y. (Key No. 713)**

Univendor

A new candy vendor, which vends 7 columns of candy or assorted merchandise and 4 columns of gum and mints, has been added to the Univendor line. The compact machine occupies no more space than earlier models with less vending space and may be equipped with a simple new nickel and dime change maker. A single coin insert takes nickels or dimes and sells merchandise for 5 or 10 cents in any regular columns. Gum and mint selections are controlled by a

selector which is simply turned either way to gum or mint as desired. **Stoner Mfg. Corp., Dept. CUB, Aurora, Ill. (Key No. 714)**

Sound System

The new Teletalk program and sound distribution system is a modern two channel console embodying in a single unit the provision for communication, radio distribution, phonograph distribution, voice reenforcement, announcements, time signals and all other features required in a sound system. One program channel is for AM-FM radio reception and phonograph recording. The other is for general announcements and voice reenforcement plus the use of a separate phonograph reproducer if desired. Both channels are equipped to operate from a Webster Electric Ekotape recorder-reproducer unit.

Controls and switches are clearly labeled and identified for ease of operation. The versatile unit permits as many as 60 room selector switches to be used, communication to rooms individually without interfering with program distribution to other rooms, an "all call" switch for announcement to all rooms simultaneously, and call-in from individual rooms to the central control console. The unit is housed in an all-metal cabinet for durability and long life. **Webster Electric Co., Dept. CUB, Racine, Wis. (Key No. 715)**

"Jacknife" Troffer

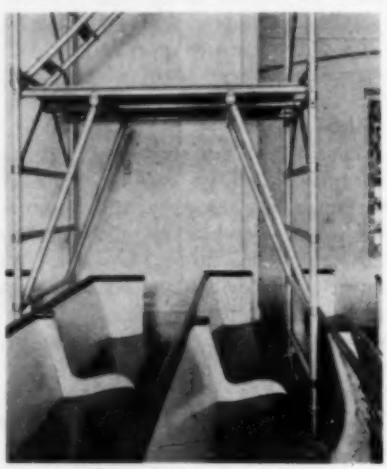
The new Guth "Jacknife" Troffer opens and swings down easily for changing lamps and starters right from the floor. The entire reflector assembly can be lifted down for thorough cleaning or repair. Installation of the new troffer has been simplified with the lightweight channels easily mounted in the ceiling and reflector assemblies added from the floor. **The Edwin F. Guth Co., Dept. CUB, 2615 Washington Ave., St. Louis 3, Mo. (Key No. 716)**

Utility Cabinet

The new Holdsall Cabinet is a small parts cabinet designed to serve a multitude of purposes. Made of steel, the cabinet makes possible the systematic storage of small parts. There are 10 drawers, 3 with fixed compartments and 7 with adjustable dividers. The partitions which divide the drawers in width are flanged for strength and are slotted at 1 inch intervals for divider adjustment. The dividers are extruded for the insertion of labels. Two steel pulls are provided on each drawer. The cabinet is 20 3/16 inches wide, 15 1/8 inches deep and 30 9/16 inches high, with olive green crinkle finish. **The General Fireproofing Co., Dept. CUB, Youngstown 1, Ohio. (Key No. 717)**

Adjustable Scaffold

Designed to straddle classroom or auditorium seating, the new High-Clearance Adjustable Scaffold section provides 6½ feet vertical clearance without extending the legs. By extending the legs the 24 inch maximum adjustment, 8½ feet of vertical clearance is provided. The scaffold section may be used as an individual unit to provide a platform height up to 8½ feet or as the lower section of an Up-Right Scaffold stairway-type tower. Such



a tower can be rolled throughout the floor area of an auditorium for all types of installation and maintenance. **Up-Right Scaffolds, Dept. CUB, 1013 Pardee St., Berkeley 2, Calif. (Key No. 718)**

Wall Base Cove Molding

Plastile Top Set Cove Base is made of Tygon vinyl plastic and is designed as a companion to Plastile vinyl plastic floor covering. Designed for toughness, corrosion-resistance, flexibility and durability, the product can be easily installed in and around corners, fits tightly against the wall to eliminate the possibility of dirt and dust particles getting behind it and is 4 inches high, ⅛ inch thick and comes in 4 foot lengths.

The material repels scuff marks and is designed to withstand rough treatment and to be unaffected by grease, oil, acids and alcohol. It is available in 7 solid colors: black, brown, gray, green, blue, red and tan and is easy to clean. **The U. S. Stoneware Co., Dept. CUB, 60 E. 42nd St., New York 17. (Key No. 719)**

Plastic Asphalt Tile

A resilient plastic asphalt floor tile known as Arlon has been announced as combining a monochromatic concept of coloring with high resistance to oils, greases, fats, alkali and wear. It is made from a combination of plastic and asphaltic compounds in 1/8 and 3/16 inch gauges and in 9 by 9 inch tile. It is available in 11 shades, the pastels and muted tones of the patterns being blended to eliminate sharp contrasts. Each pattern has a base color with which a slightly lighter and a slightly darker tone are combined to provide an almost plain color effect while concealing footprints and marks which would be more quickly noticeable on a plain color floor. **Armstrong Cork Co., Dept. CUB, Lancaster, Pa. (Key No. 720)**

Slimline Fluorescent Lamps

Two new sizes, 40 and 60 watt, are now available in the T-12 Slimline fluorescent lamps offered by Sylvania. The new 48 inch 40 watt and 72 inch 60 watt lamps are constructed the same as the 75 watt size and have instant-starting and 6000 hour average life rating on a 12 hour cycle. Addition of the new sizes provides Slimline lamps suitable for every type of application. **Sylvania Electric Products Inc., Dept. CUB, 500 Fifth Ave., New York 18. (Key No. 721)**

Noiseless Typewriter

The Remington Noiseless DeLuxe is a new typewriter finished in two-toned gray and incorporating a number of improvements and refinements over previous models of noiseless typewriters developed by the company. New features include: a completely enclosed dustproof back; structural members, carriage ends and rear comb of die-cast aluminum; feed rolls of softer-surfaced neoprene rubber for better paper gripping; closer tolerances, and improved machining of

various integral parts. **Remington Rand Inc., Dept. CUB, 315 Fourth Ave., New York 10. (Key No. 722)**

Smoke Abatement System

The problem of smoke abatement in residential districts where colleges are commonly located makes it advisable for the business manager and his engineers to give the subject serious consideration. An improved, effective system for smoke abatement has been developed by the Eclipse Fuel Engineering Company based on the basic principle of forced air to eliminate objectionable smoke. The Eclipse Centrifugal Pressure Blower is an overfired air jet system which operates only when needed, forcing air into the firebox to cause complete combustion, thus avoiding the formation of excess smoke.

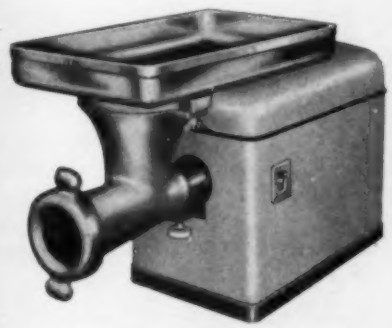
The Eclipse plan offers the single manifold and double manifold air jet systems, the system best suited to the need being engineered to fit the specific application. **Eclipse Fuel Engineering Co., Dept. CUB, Rockford, Ill. (Key No. 723)**

Portable Typewriter

The Leader Portable is a low priced Underwood typewriter with the alphabetical keys in standard arrangement but with all common arithmetic signs as well as conventional business symbols. The Leader is finished in duotone gray and black and comes complete with a gray carrying case. It has easy action touch, 42 key keyboard, right and left shift key, standard length single color ribbon, automatic line finder and other features. **Underwood Corp., Dept. CUB, 1 Park Ave., New York 16. (Key No. 724)**

Food Chopper

The new Blakeslee food and meat chopper has quick cutting action which makes a clean cut without crushing or mashing meat and other foods. An extra safety factor for severe overloading such as bones blocking the knives is offered in the Vee belt employed on the first speed reduction. The machine is

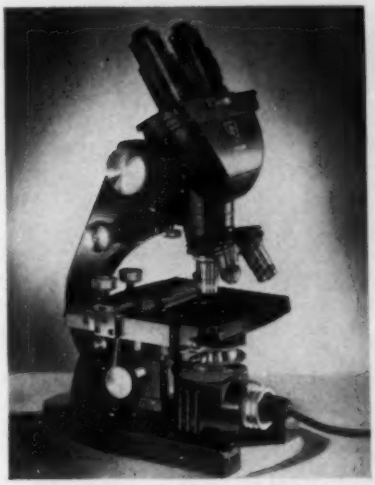


available in 3 sizes to grind from 8 to 30 pounds per minute and an attachment is available with slicer, shredder, julienne and grater plates. All models are available in Duco finish or in stainless steel. **G. S. Blakeslee & Co., Dept. CUB, 1844 S. 52nd Ave., Chicago 50. (Key No. 725)**

Football Field Marking

Certified Hydall Paste No. 451-F is a new marking material for athletic fields. Designed to last indefinitely, the paste is thinned with water and may be applied by standard marking machines. It covers grass blades from the tip to the ground, adheres well and does not dust. The product is designed to be harmless to the grass and is unaffected by weather. **United Laboratories, Inc., Dept. CUB, 16801 Euclid Ave., Cleveland 12, Ohio. (Key No. 726)**

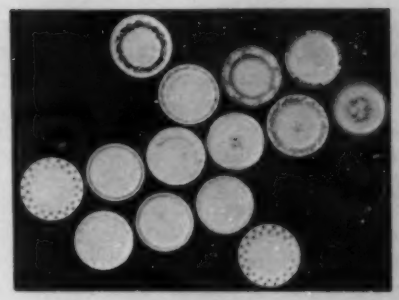
AO Spencer Microscopes



A new series of microscopes has been announced which incorporates many new features and refinements. The pilot models have been subjected to hard wear and actual use in a testing procedure to ensure precision operation. The new stand is made of aluminum to reduce weight while giving increased strength and rigidity. A new attached illuminator which provides permanently adjusted illumination that fills the field of all objectives without refocusing the condenser is optional equipment with the AO Spencer Microscopes.

The fork-type substage is larger, sturdier and has new locking and keying devices to assure quick, positive positioning of the condenser. Other features include a new tension adjustment; two knobs, one for each hand, for all controls; ball-bearing ways; spring loading; a new "pinch grip" mechanical stage; a new 10X divisible objective; new dustproof, dust shedding nosepiece, and dual-cone construction for longer life and correct alignment of objectives. **American Optical Co., Scientific Instrument Div., Dept. CUB, Buffalo 15, N. Y. (Key No. 727)**

Syracuse China Patterns



The new "Hospitality Group" is a series of 14 new Syracuse China patterns designed to give a wide choice of decoration and color combination. This is part of the new stock pattern program released by the makers of Syracuse China which makes it possible to get china in any of these new patterns whenever needed. The "Hospitality Group" offers a wide variety of pattern for every use, available for prompt delivery. **Onondaga Pottery Co., Dept. CUB, Syracuse 4, N. Y. (Key No. 728)**

Smoke Abatement System

Smoke can be a problem in college maintenance and is a particularly difficult one because colleges are commonly located in residential areas. The PliOjet over-fire air system for smoke abatement should therefore command the interest of business managers and engineers. The system works on the basis of preventing smoke formation through injecting secondary air into the fire where it is needed and mixing it with the unburned gases, thus obtaining complete combustion.

Ten standard sets make it possible to select the arrangement that will provide adequate penetration at the maximum firing rate according to requirements. All installations are engineered and installed to meet indivdiual conditions. **Plibrico Jointless Firebrick Co., Dept. CUB, 1800 Kingsbury St., Chicago 14. (Key No. 729)**

Microscope Attachment

Three types of reflected illumination for microscopes are provided in the new Tri-vert Illuminator. It can be readily attached to the body of any standard non-objective microscope for the examination of opaque and semi-opaque specimens. The change-over from dark field to bright field illumination is instantaneous and is controlled by a lever. A Polaroid polarizer and cap analyzer provide for polarized light examinations. All optical parts of the attachment are completely enclosed for protection against breakage and seepage of dust. **Bausch & Lomb Optical Co., Dept. CUB, 635 St. Paul, Rochester 2, N. Y. (Key No. 730)**

Product Literature

• The establishment of **FM radio centers in high schools and colleges** is described in a brochure published by General Electric Co., Electronics Park, Syracuse 1, N. Y. The brochure contains specifications for radio center layouts, suggests types of programs which may be presented, illustrates three basic station layouts and illustrates the radio center at Syracuse University which now has its own low-power FM broadcast facilities. **(Key No. 731)**

• A mimeographed copy of **suggested specifications for mastic applied block and patterned hardwood flooring** has been made available by the Maple Flooring Manufacturers Assn., 46 Washington Blvd., Oshkosh, Wis. A full page of illustrated patterned floor designs supplements the specification material. **(Key No. 732)**

• Forms, properties and methods of installing Fiberglas acoustical materials, including plain and perforated tile and board, are discussed in an 8 page booklet issued by Owens-Corning Fiberglas Corporation, Toledo 1, Ohio, **"Acoustical Materials for Quiet and Beauty—With Fire Safety."** Use of Fiberglas thermal insulations for acoustical purposes is discussed and the booklet is illustrated with application photographs and diagrammatic drawings. **(Key No. 733)**

• A booklet designed to aid in planning the reduction of airborne cross-infection in classrooms has been issued by Hanovia Chemical & Mfg. Co., Newark 5, N. J. Entitled **"Ultra Violet Air Disinfection in School,"** the booklet describes the sterilization of air by means of ultraviolet light, what ultraviolet light is, what bands of ultraviolet are most effective for germicidal action and the method of application in the average school room. **(Key No. 734)**

• A brochure giving data on cold cathode light has been offered under the title, **"New Horizons of Light,"** by Colonial Electric Products, Inc., East Patterson, N. J. Giving information on Colonial Cold Cathode Lamps and fixtures, the brochure contains an analysis of hot cathode and cold cathode lighting, with comparison data, maintenance comparison data, lamp temperature data, price list and other pertinent details on this method of lighting. **(Key No. 735)**

• The value of grease interceptors is discussed in **Bulletin G, "Grease a Costly Problem or a Profitable By-Product"** issued by Josam Mfg. Co., Dept. D-11, 1302 Ontario St., Cleveland 13, Ohio. Complete information on grease interceptors and examples of how waste grease has been salvaged are some of the points covered. **(Key No. 736)**

• **Corbin Letter Boxes** for installation in colleges, universities, clubs and similar locations are described and illustrated in two booklets issued by Corbin Cabinet Lock Co., New Britain, Conn. Descriptive information is given on key as well as keyless lock boxes. **(Key No. 737)**

• The new **1950 Catalog** of Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, contains comprehensive listings of radio and electronic parts and equipment for classroom, laboratory and shop. The 196 page book gives information on the selection of books, materials, training kits, test instruments, parts and equipment required by schools for their radio and electronics training activities as well as data on amplifiers, public address equipment and intercommunication systems for use in classrooms, auditoriums and outdoor stadiums. **(Key No. 738)**

• **National Art Convectors,** developed by The National Radiator Co., Johnstown, Pa., are described and illustrated in the new 16 page **Catalog No. 555** recently released. Complete dimensional data, installation measurements, roughing-in charts, steam and hot water ratings, methods of properly sizing the convectors to the heating job, descriptions of the copper tube, aluminum fin, cast iron header heating element, reenforced sheet steel enclosures and other details are included in the catalog. **(Key No. 739)**

• The **Dynar Recreation Building,** designed for quick, inexpensive construction to provide recreational facilities for schools, colleges and communities, is described in a booklet published by the Dynar Corporation, 30 Rockefeller Plaza, New York 20. The building is designed like a bomber, using the monocoque principle for strength, high clearance and functional beauty. It offers 7200 square feet of unbroken floor area which can be used as gymnasium, as a sports center and for other activities. Insulation, soundproofing, lighting and heating are integral parts of the "packaged" building, details of which are given in the booklet. **(Key No. 740)**

• A **Catalog** of Pratt & Lambert Paint and Varnish has recently been received from Pratt & Lambert, Inc., 75 Tonawanda St., Buffalo 7, N.Y. Full descriptive information on all paint and varnish products made by this company is given and the catalog is fully indexed. **(Key No. 741)**

• **"Tennant Floor Treating Materials"** are discussed in a 2 color leaflet issued by G. H. Tennant Co., 2530 N. Second, Minneapolis 11, Minn. Characteristics and uses of Tennant floor seals, waxes and special-purpose materials are given together with a comparative chart of self-polishing waxes. **(Key No. 742)**

• **Fisher Unitized Laboratory Furniture,** designed to be easily and quickly installed either as single units or as complete laboratory arrangements, is described and illustrated in **Catalog B** recently issued by Fisher Scientific Co.-Eimer and Amend, 717 Forbes St., Pittsburgh 19, Pa. The 18 standard pieces of furniture which compose the line are illustrated as single units and as they are used in typical assemblies in various laboratories. Two pages of sketches illustrate typical furniture assemblies for various laboratory requirements. **(Key No. 743)**

• Administrators, architects, building committees and others interested in school and college planning and construction will find invaluable information in a booklet, **"Better Environment Through Daylighting in Schools,"** recently published by the Metal Window Institute, 806 Roland Rd., Cheltenham, Pa. The result of research in lighting and related subjects, the booklet covers such interesting points as how to determine the potential daylight available anywhere in the United States, the importance of reflectance to proper daylighting, basic requirements for school daylighting, methods of controlling daylight illumination, how to position a school building for best daylighting, the problem of remodeling and how metal windows are used in schools, their cost and their maintenance. The material is attractively presented and is illustrated by charts, photographs and sketches. **(Key No. 744)**

• Descriptive information, specifications and illustrations of uses of **"Heerwagen Acoustic Diaphragm Tile"** are given in a folder issued by Heerwagen Acoustic Decoration Co., Fayetteville, Ark. The tile, made with a cotton base, is said to absorb sound by diaphragmatic action. **(Key No. 745)**

• The new **"Market Guide and Price List"** giving full information on the meat and poultry products offered by Pfaelzer Brothers, Union Stock Yards, Chicago 9, is now available. The leaflet shows illustrations in color of all cuts of meat described. **(Key No. 746)**

Suppliers' News

Libbey Glass division of Owens-Illinois Glass Co., Toledo 1, Ohio, announces the establishment of a branch office at 3615 Olive St., St. Louis 8, Mo. Mr. R. R. Sutter has been appointed manager of the new branch.

Neumade Products Corp., manufacturer of audio-visual, micro-recording and television equipment, announces removal of its offices from 427 W. 42nd St. to new offices at **330 W. 42nd St., New York 18.**

PRODUCT INFORMATION

Index to "What's New"

Pages 77-80

Key

709 American Seating Co.
Folding Chair

710 Detroit Steel Products Co.
Acoustically-Treated Panels

711 Parker D. Perry Inc.
Chet, Dishwashing Detergent

712 Frigidaire Division
Freezers

713 Eastman Kodak Co.
Daylight Viewer

714 Stoner Mfg. Corp.
Univendor

715 Webster Electric Co.
Sound System

716 The Edwin F. Guth Co.
"Jacknife" Troffer

717 General Fireproofing Co.
Utility Cabinet

718 Up-Right Scaffolds
Adjustable Scaffold

719 The U. S. Stoneware Co.
Wall Base Cove Moulding

720 Armstrong Cork Co.
Plastic Asphalt Tile

721 Sylvania Electric Products Inc.
Slimline Fluorescent Lamps

Key

722 Remington Rand Inc.
Noiseless Typewriter

723 Eclipse Fuel Engineering Co.
Smoke Abatement System

724 Underwood Corporation
Portable Typewriter

725 G. S. Blakeslee & Co.
Food Chopper

726 United Laboratories, Inc.
Football Field Marking

727 American Optical Co.
AO Spencer Microscopes

728 Onondaga Pottery Co.
Syracuse China Patterns

729 Plibrico Jointless Firebrick Co.
Smoke Abatement System

730 Bausch & Lomb Optical Co.
Microscope Attachment

731 General Electric Co.
"Radio Centers In Colleges"

732 Maple Flooring Manufacturers Assn.
Flooring Specifications

733 Owens-Corning Fiberglas Corp.
"Acoustical Materials"

734 Hanovia Chemical & Mfg. Co.
"Ultra Violet Air Disinfection"

Key

735 Colonial Electric Products, Inc.
"New Horizons of Light"

736 Josam Mfg. Co.
Bulletin G

737 Corbin Cabinet Lock Co.
"Letter Boxes"

738 Allied Radio Corp.
1950 Catalog

739 The National Radiator Co.
Catalog No. 555

740 Dynar Corporation
Recreation Building

741 Pratt & Lambert
Paint and Varnish Catalog

742 G. H. Tennant Co.
"Floor Treating Materials"

743 Fisher Scientific Co.
Catalog B

744 Metal Window Institute
Booklet

745 Heerwagen Acoustic Decoration Co.
"Acoustic Diaphregm Tile"

746 Pfaelzer Brothers
"Market Guide"

USE THIS CARD

This card is detachable and is provided for your convenience in obtaining information on all items advertised in this issue. See reverse side.

FIRST CLASS
PERMIT NO. 136
SEC. 34.9 P. L. & R.
CHICAGO, ILL.

BUSINESS REPLY CARD
No Postage Stamp Necessary if mailed in the United States

2 CENTS POSTAGE WILL BE PAID BY

COLLEGE AND UNIVERSITY BUSINESS

919 NORTH MICHIGAN AVENUE

CHICAGO 11, ILLINOIS

Index to Products Advertised

Key		Page
747	Adams & Westlake Company Aluminum Windows	59
748	American Chair Company Institutional Furniture	62
749	Ampro Corporation Tape Recorder	69
750	Anchor Hocking Glass Corp. Dinnerware, Glassware	42, 43
751	Armour & Company Institutional Food	49
752	Bausch & Lomb Optical Co. Microscopes	5
753	Carrom Industries, Inc. Institutional Furniture	53
754	Crane Company Plumbing Equipment	1
755	Dudley Lock Corporation Locks	66
756	Finnell System, Inc. Floor Maintenance	44
757	Franklin Research Company Floor Wax	58
758	General Fireproofing Company Aluminum Chairs	55
759	Guth Company, Edwin F. Institutional Lighting	50
760	Herold Supply Corporation Steel Bed	66
761	Hauserman Company, The E. F. Movable Steel Interiors	63
762	Herrick Refrigerator Co. Refrigerators	74
763	Hillyard Sales Companies Floor Maintenance	64
764	Hobart Manufacturing Co. Food Machines	3rd Cover
765	Huntington Laboratories, Inc. Floor Maintenance	60
766	Ideal Power Lawn Mower Co. Power Mowers	62
767	Kellogg Company Institutional Food	70
768	Kewaunee Mfg. Co. Fume Hood	58
769	Lawson Associates, Inc., B. H. Institutional Finance	76
770	Libbey Glass Co. Glassware	Facing page 49
771	Maple City Stamping Co. Steel Folding Chair	66
772	Maple Flooring Manufacturers Assn. Maple Flooring	71
773	Medart Products, Inc., Fred Gymnasium Equipment	7
774	Michaels Art Bronze Co., Inc. Exhibit Cases	60
775	Minneapolis-Honeywell Regulator Co. Temperature Controls	2nd Cover
776	Multi-Clean Products, Inc. Floor Maintenance	75
777	National Biscuit Company Institutional Food	2
778	National Biscuit Company Institutional Food	67
779	National Furniture Mfg. Co. Institutional Furniture	56
780	National Vulcanized Fibre Co. Wastebaskets	64
781	Pearce Corporation Rotary Lawn Mower	74
782	Pittsburgh-Des Moines Steel Co. Steel Grandstand	61
783	Powers Regulator Co. Shower Mixers	41
784	Remington Rand, Inc. Microfilming Service	56
785	Sexauer Mfg. Co., J. A. Faucet Washers	62
786	Sexton & Co., John Institutional Food	Following page 48
787	Sikes Co., Inc. Institutional Furniture	8
788	Simmons Company Institutional Furniture	47
789	Sloan Valve Co. Flush Valves	4th Cover
790	Smooth Ceilings System Ceiling Building Method	62
791	Stoner Mfg. Corp. Candy Vending Machine	73
792	Toastmaster Products Div. of McGraw Electric Co. Toasters	57
793	Toledo Scale Company Food Machines	51
794	Universal Bleacher Co. Folding Bleachers	72
795	Vestal, Inc. Floor Maintenance	68
796	Vogel-Peterson Co. Coat Rack	66
797	Vonnegut Hardware Co. Panic Devices	65
798	Wakefield Brass Co., F. W. Institutional Lighting	54
799	Walrus Manufacturing Co. Institutional Furniture	74
800	Wayne Iron Works Folding Grandstand	68
801	Weston Electrical Instrument Corp. High Frequency Analyzer	73
802	Williams Iron Works, Inc. Steel Grandstand	75

January, 1950

Please ask the manufacturers, indicated by the numbers I have circled, to send further literature and information provided there is no charge or obligation.

WHAT'S NEW				
709	717	725	733	741
710	718	726	734	742
711	719	727	735	743
712	720	728	736	744
713	721	729	737	745
714	722	730	738	746
715	723	731	739	
716	724	732	740	

ADVERTISEMENTS						
747	755	763	771	779	787	795
748	756	764	772	780	788	796
749	757	765	773	781	789	797
750	758	766	774	782	790	798
751	759	767	775	783	791	799
752	760	768	776	784	792	800
753	761	769	777	785	793	801
754	762	770	778	786	794	802

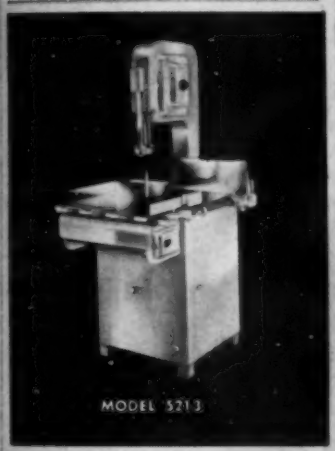
NAME _____ TITLE _____

INSTITUTION _____

PEELERS

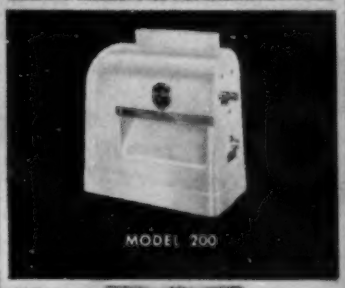
FOOD CUTTERS

MEAT SAWS



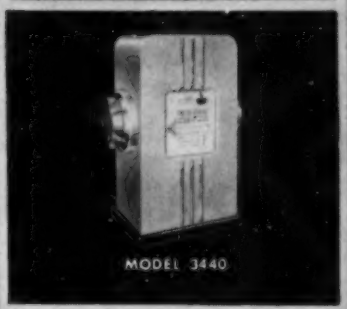
MEAT CHOPPERS

TENDERIZERS



SITUATIONS WANTED

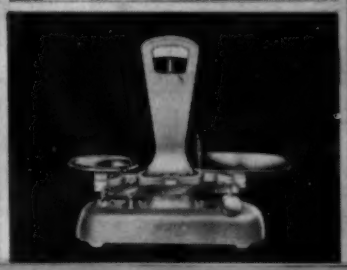
COFFEE MILLS



FOOD SLICERS

MIXERS

SCALES



DISHWASHERS

SITUATIONS WANTED

GLASSWASHERS

WANTED—

The Finest "Kitchen Helpers" You Can Find

● EVERY ONE of these Hobart helpers is backed by years of on-the-job experience. They're neat in appearance, able to perform any kitchen chore quickly, efficiently and economically. They can furnish excellent references—from thousands of installations where they've proven their worth many times over. They're the caliber of helpers you enjoy employing—the kind that serve faithfully year after year and speed kitchen operations.

Take Hobart dish or glasswashers, for instance. They turn out tableware that's sparkling clean in minutes. Take Hobart mixers (choose your size). With *Hobart Planetary Action*, positive speeds and extra-duty attachments, they serve you in a dozen different ways. Take slicers, choppers, peelers, coffee mills, tenderizers and scales. They step up production, improve service and reduce costs—on day or night schedule—without trouble.

If you're looking for "mechanical kitchen help"—the finest available—look to *Hobart food and kitchen machines*; a complete line sold, serviced and guaranteed by the greatest name in the industry. Phone your convenient Hobart representative for details.

Steakmaker® tenderizers are manufactured by Hobart-Federal Engineering Corporation, a Hobart subsidiary. ®Reg. U. S. Pat. Off.

TRADE MARK OF QUALITY

Hobart *Food Machines*

THE HOBART MFG. COMPANY, TROY, OHIO • Factories in Troy, Dayton, Greenville, Minneapolis, U. S. A. • *The World's Largest Manufacturer of Food and Kitchen Machines*

CANADA • BRAZIL • ENGLAND • AUSTRALIA • FRANCE

SITUATIONS WANTED

unequalled records show

maintenance costs as low as **1/4¢** *per valve per year*

more **SLOAN** *Flush* **VALVES**
are sold than all other makes combined

SLOAN VALVE COMPANY • CHICAGO • ILLINOIS